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THE SCHOOL SURVEY

A TEXTBOOK ON THE USE OF SCHOOL SURVEYING IN THE ADMINISTRATION OF PUBLIC SCHOOLS

BY

JESSE B. SEARS

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TO

MY FATHER AND MOTHER

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EDITOR'S INTRODUCTION

A DECADE and a half ago a very important development in school administrative procedure was begun in the work of the school survey. The practical results of the survey movement in education have been to add a large and rapidly growing amount of new and important instructional material to our courses in school administration. Beginning first with the city school survey, in 1911, the idea has since been extended to the State, county, university, and normal school, as well as to finance, buildings, courses of study, administrative organization, and other special phases of school work. The results of the survey movement, coupled with the new test and measurement movement which came in only a little later, have so deeply influenced administrative practices and instruction in school administration as to promise an early rewriting of our texts in terms of these new administrative procedures.

The school survey is a tool which has enabled us to develop an important form of educational engineering, by means of which the problems of a school system may be determined, a more intelligent procedure in the organization and administration and supervision of a school system may be formulated, waste may be eliminated, and the returns on the investment of time and money and human effort put into education may be materially increased. As the science of engineering is based on a thorough survey of conditions and problems, exact measurement, experimental control of processes, and a reorganization and readjustment of procedures in the light of facts; so educational engineering must be based on a thorough survey of conditions and problems, a

careful study and testing of existing procedures, and the formulation of a remedial and constructive program to replace inaccurate procedures, subjective opinion, and wrong administrative organization and methods, that waste in time and money and energy may be prevented. It is this new technique that the school survey has brought to educational work, and in consequence the survey stands to-day as our most important means for educational diagnosis. School administration, as a result, is rapidly being changed from guesswork and the use of practical-experience procedures into the science of increasing educational returns through the application of modern methods to the problems of the school.

Begun only a decade and a half ago, the school survey has now become common and is used everywhere. Still more, it has been standardized as to type and purposes and procedures, and has been established as an important part of our administrative technique. Fortunately the movement is now passing over into the self-survey, made by the local educational authorities, and still further into the continuous self-survey through the creation of city and State departments of statistics and research. This is a most desirable culmination of the movement.

The results that have come from the school survey, both in fact and technique, have been large, indeed. Courses for the study of the printed reports and of survey procedure have been developed by many departments and schools of education, and we have only awaited the production of a satisfactory textbook on the procedure and administrative use of the survey to enable departments of education generally to offer a course in the methods of the survey that would not only summarize the results which have so far been worked out, but would also give students of school administration training in the best of diagnostic technique and remedial procedure.

Impressed with the importance for students of education of the survey movement and its results, Stanford University offered a course in school survey procedure first in 1918. This course has been offered one or more times each year since, and has been described in the university announcements, as follows:

> 46. *School Surveys and Educational Diagnosis.* A study of the literature relating to school surveys and other forms of educational measurements as a basis for the investigation of practical problems in school administration and supervision. How to organize and conduct a school survey, what to look for, how to collect and interpret data, and how to set forth the results of the investigation will be important features of the course.
>
> 4 units, winter and summer quarters. (*Sears*)

As an outcome of the work of this course, the present text on School Surveying, summarizing the results and the methods so far worked out, has been produced, and it is hoped that it may find a welcome from teachers of school administration generally.

Ellwood P. Cubberley

PREFACE

This book is an attempt to bring together in usable form the contribution that has been made to education by what is commonly referred to as the survey movement. While of only recent development, this movement has already come to excellent fruitage for both the theory and the practice of education. Through its work the actual technique of research has been carried well forward and greatly popularized, and new light has been thrown upon practice at every point in the school system. The result has been that organization, administration, supervision, and teaching are rapidly becoming professional in character — professional in the sense that they are based on exact knowledge and are technical and complex.

The enthusiasm with which the survey idea has been received by educators has been marked. Almost every teacher, principal, supervisor, or superintendent has in some way tried to apply the idea in practice. Investigations and experiments have been almost numberless, and any literature bearing upon the how and the why of the survey has been eagerly sought after. So earnest has been the demand for knowledge on the subject, and so much worth while has the idea proved to be, that colleges and universities have for some time been offering courses on the technique of the school survey. It has been the author's experience in giving such a course for several years that has led to the preparation of this volume.

In writing this book, two points of view have been kept in mind. First, that a survey is a scientific inquiry which obtains facts about the present efficiency of a school system,

and on the basis of these facts offers constructive proposals for desirable improvements. Second, that actual administration, supervision, and instruction are professional in character only when they are carried on in the light of such facts and proposals as a survey would provide, and, accordingly, that all teachers, supervisors, and administrators must do survey work. This is merely saying that the technique of the survey is essentially a part of the proper technique of administration, supervision, and teaching.

It has not been an easy task to compress within the limits of a volume of usable size all the technique essential in the making of a school survey. The technique that may be useful in a survey includes almost all the known methods and devices that have been found useful in educational research. The field within which the survey works is as wide and as varied in character as is the school system itself. There is almost no possible research method or research problem in education which, under some circumstances, might not be brought into a school survey. Accordingly, in order to give a fairly comprehensive treatment, it has been necessary to omit innumerable detailed inquiries, such as will readily suggest themselves to the reader, and to confine the treatment to the main problems arising in one particular type of school system.

The survey of a city school system has been chosen as a basis for this book, largely because a survey of a city school system calls for most of the work and thinking that would be needed in the survey of a county school system or a State school system, and perhaps for some additional technique as well. In the organization of this book an attempt has been made to suggest a clear and logical procedure for an actual school survey, and to illustrate the necessity for having a single point of view, and a method by which the survey may keep that point of view throughout, and so hold strictly to

essentials in the midst of the maze of details with which it will have to deal.

So many books and articles containing graphic representation are available, as well as good textbooks on the use of graphic methods in school administration, that it has seemed unnecessary to consume space with large numbers of diagrams and charts. Most of the actual figures and forms and statistical data presented have been intended merely as illustrations, and should be understood as such. In large numbers of cases, no data have been offered, but only an explanation of how to gather and analyze the data. Further, after a procedure has been fully illustrated for one purpose, illustration in a different part of the study has been deemed unnecessary. In this way many of the simpler explanations and illustrations used in early chapters are taken for granted later on in the book.

As by its organization the book has attempted to offer sound and helpful analysis of the problems of a survey, and incidentally of the problems of school administration, so it is hoped that the discussion illustrates how the facts from one phase of an investigation must be brought to bear at other points in the study. If a detail such as class marks has occupied large space, it has been not merely to reveal the efficiency of this administrative device, but rather to throw light upon the larger machinery and processes to which class marks are a key. A bad marking system means a bad promotion system, weak management, and inefficient supervision.

The book places much responsibility at every point upon administrators, yet it is not addressed to administrators alone. In reality a survey touches all school officers, all school machinery, and all school processes alike. A survey will as often show the teacher what is expected of her as it will the administrator what is expected of him. It will as

often analyze teaching as it will administrative machinery processes, and products. Accordingly, while the book is not addressed to beginning students in education, it is addressed to those who have made a start in their professional studies. Especially is it addressed to all those who are actually at work — whether they be school board members, administrators, supervisors, research workers, or teachers — since it is through all and not any selected few of these officers that the larger contribution of the survey movement will regularly be brought to bear upon the normal processes of school keeping. Having kept this point of view in mind throughout, the author hopes that this book may contribute in some small measure in bringing the school survey movement to its proper fruition in the creation of a staff of research workers for every school system.

The author's obligation to those who initiated and who have done so much to direct the survey movement must be acknowledged here, as it has been in the many footnote and bibliographical references throughout the book. In particular is it a pleasure to make special reference to the author's earlier apprenticeship in school survey work under the direction of the editor of this series.

Jesse B. Sears

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THE SCHOOL SURVEY

INTRODUCTION

CHAPTER I

THE NATURE AND FUNCTIONS OF A SCHOOL SURVEY

1. The school survey movement

Origin of the movement. In its present form the school survey is relatively a new idea in education, though it is obviously an expansion of an old idea and of an old practice.[1] As now understood, it reaches back scarcely more than a decade and a half. While in purpose and even in methods, many of the investigations of such educators as Horace Mann and Henry Barnard were akin to the present movement, they were but vague anticipations of the sweeping scientific movement which has taken such firm hold on educational administration in recent years.

The term "survey" was borrowed from the field of sociology, and has been used to describe the process by means of which we have sought to define the efficiency of a school system. The term has been used more or less loosely, but in general it has been applied to careful factual studies of educational conditions and results together with constructive criticisms of the findings.

[1] See Wells, Guy F.: "First School Survey"; in *Educational Review*, vol. 50, p. 166 (September, 1915). Also see Mahoney, James: *Some Foreign Educational Surveys*, United States Bureau of Education, Bulletin no. 37 (1915).

Two main forces have been responsible for the development of this movement. One of these is economic, the other is scientific.

Economic influences. Since the beginning of public schools in this country, two forces have been operating to increase the cost of education to the taxpayer. In the first place, the number of pupils to be educated in these schools has continually increased. This has been due partly to the growing popularity of the idea of securing an education, and partly to the fact that by compulsory laws we have forced a larger and larger percentage of our young people into the schools. In the second place, our program of education has continued to expand. The school of the Three-R's has grown and continues to grow at a rate that could scarcely have been imagined by our earlier educators. Naturally, with more of our children going to school, with all going for longer and longer periods of time, and with the program broadening each year, our costs have mounted upward.

With this upward trend in school costs it is not strange that the schools should have been attacked at every point at which they were in the least vulnerable. Every taxpayer was asking, Where is this program leading us? and some were insisting that the results obtained were unsatisfactory and not worth the cost. All this has led school boards and school administrators to take a more and more critical attitude toward any expansion of program, and to inquire somewhat more sharply into the value of the results obtained.

Scientific influences. During the more recent years a science of education has been in process of development. Leading students and writers in this field have questioned our educational philosophy and our educational practice in a new way. It was as obvious to these men as to the layman that schools were teaching much that had only the most remote connections with our own culture and times. It was

clear to them, too, that we were proceeding by methods that were based upon false assumptions, and at a cost that was not warranted. Our aims, our curricula, our organization, our management, and our results were brought under a sharper scrutiny. The new psychology, the new social conception of education, and the increasing knowledge of industrial and business organization and management were gradually brought to bear upon the problems of education. The outcome was inevitable. Tradition and opinion began to yield to fact. Rough estimates gave place to exact measurements. In short, these new viewpoints in education were giving rise to the development of a new technique of inquiry, and educators were beginning to speak in quantitative terms.

This was not the work of universities alone. The idea spread rapidly from the college classroom and from the work of a few investigators to the men who were directing our schools. Studies of retardation, now a part of the routine of school administration, were hailed as an important discovery.[1] Studies of children's health, the development of psychological and health clinics, and studies as to the uses of the school plant were indicative of what scientific knowledge and method were promising for education.

With a critical public opinion demanding economy and efficiency, and with a new conception of education growing rapidly into a science of education, we had both the motive and the means by which the survey movement could take form. Under these circumstances it was not strange that the public should take readily to the survey idea. People were already familiar with the work of the efficiency engineer

[1] The development of retardation studies is interestingly traced by Volkmar, Hilda, and Noble, Isabel, in "Retardation as Indicated by One Hundred City School Reports"; in the *Psychological Clinic*, vol. VIII, p. 75 (May 15, 1914).

and the accounting expert in business and industry. Naturally, then, when boards of education called upon educational experts to help point the way out of difficulties, the idea was promptly understood and sanctioned by the public, and the school survey movement had begun.

What a school survey is. In purpose, scope, and methods, the school surveys made up to the present time have been widely varied. All have described the schools, explained their plan of operation, and tried to evaluate their efficiency. Some have been broad and comprehensive, while others have dealt intensively with a single problem, such as finance, buildings, organization, or the efficiency of instruction in a given subject or group of subjects. In method, some represent little more than general observations and statements of opinion, while others have been thoroughly objective and scientific.

As conceived in this book, the term "survey" may apply either to the study of an entire school system, or to any single part of the system or problem within the system. It may be completed as a single piece of work, or be continuous, shifting from problem to problem as need arises. In any case, it must have a clear and definite purpose. Its aim must not be information merely (that might perhaps be research, but not survey work), but information as to processes and results. That is, the purpose of a survey is to justify or to modify educational procedures.

In addition to such an aim or objective, a survey must be scientific in its methods of study. It may use opinions, but it must use them with proper limitations. In the main it must deal with facts, and with all the facts that are at all directly pertinent. It must analyze and describe and measure, so that the efficiency of results may be seen clearly in the light of the means that have been used to produce them.

Beyond this description or measure of successes and fail-

ures, however, beyond this mere diagnosis, the survey must go. The outstanding characteristic of the modern school survey, the thing which distinguishes it from mere investigation or from the usual academic research, is not its description or its measurements, but rather its constructive proposals, its prescriptions affecting the future.

With an aim that is stated in terms of actual problems that are to be solved, with a procedure that is rigidly scientific, and with a definitely constructive attitude toward education, the school survey is at once a valuable type of research work and a stimulus to the use of scientific procedures in the management of our schools. If all our survey reports do not fully satisfy this conception of a school survey, at least a fair percentage of the more recent ones approximate it.

2. Influence of the survey movement

Such a new dynamic force could not easily fail to make a deep impress on education. What the school survey has already accomplished or helped to accomplish is easily discernible. It has contributed both to the science and the practice of education, and so has helped to bring the work of the school administrator nearer to that of a profession. Further, it has helped to restore the confidence of the public in the essential soundness of the public school and of the social theory upon which the school rests.

Influence on the development of educational standards. It is hard to realize how few well-established educational standards we had a decade and a half ago. We had only vague general notions as to how well a sixth-grade child should write or spell or add; we knew little about what units of cost to use, or what a given amount of schooling of a given kind should cost; we knew but little about hygienic standards, or how to apply them in the construction of buildings and in the housing of children; we used a grading system, but

were not able to state how much education a given grade stood for; and we ignored the obvious fact that grade six in one system was not at all the same as grade six in another.

The survey has made prompt use of every scientific method or device that has given the least promise of adding to our facilities for getting at the real facts relating to the efficiency of our schools. Principles of organization, health rules, tests and scales, retardation technique, units of cost, and scoring devices have been put to the test in the survey. By such use their defects and strong points have been found and so well defined that their perfection has been much more rapid than it otherwise could have been.

Even more important for the science of education has been the opportunity for research men to come into intimate and responsible contact with the schools as they were operating, and to face the necessity for solving real problems on the ground. Innumerable new problems have come to light, suggestions for new methods of study have been obtained, and, what is also important, the idea of research has been greatly popularized. If all this has seemed to stimulate the tendency to shift the emphasis in educational research from the historical and philosophical to the practical aspects of the field, the results in scientific achievement have more than justified the change.

Influence on school practice. Like any new movement, the school survey was at first hailed by some as a panacea for all the ills of the schools, and by others as one more passing fad. The New York City School Survey (1911) convinced most practical educators that it was neither, but that it did have very great practical possibilities. Now, as we look back over the field, we see many evidences that this promise has been fulfilled. School authorities are better informed to-day as to the fundamentals of their work than they have ever been. This is due in part to more and better training,

but in part, also, to their contact with the new school survey literature. This has had a very stimulating effect. The once highly technical work of testing, cost accounting, and measuring retardation are now routine parts of school work. This is quite largely due to the constant use of these devices in school surveys. Research or staff service, too, has by now been established as a normal part of school machinery, largely because of what surveys have done to show its possibilities. Official reports are much improved because they have been patterned after survey reports. The effect upon school standards is obvious, and upon the general attitude of both educators and laymen toward the possibilities of solving school problems the effect is marked. While the survey has not solved all our problems, it has nevertheless made a contribution that is obvious and clearly worthy of careful study.

3. Our need for a textbook treatment of the subject

The contributions which this movement has made are so distinctive in character, and so marked in their extent and variety, that it has seemed worth while to try to embody in textbook form the essentials of the aims and scientific technique which it represents. The justification for such a book is not so much a theoretical as it is a practical one. In a school survey practically the entire field of education is brought under review. Obviously, if the field were thought of in terms of the logical analysis suggested by university courses in education, such a book would be impossible. But the survey is a different thing. It has a unity and a logic of its own. It uses the subject-matter of our university courses, but only as this subject-matter furnishes an explanation as to how to solve some school problem.

It is the educational problem that furnishes our point of departure. The problem has been so vital that we have in-

sisted upon finding a solution for it. The survey is the solution, and as a well-organized program of procedure, oriented with reference to definite purposes, it is capable of study as such. Because of the demand for its use, some systematic explanation of it is desirable and will be undertaken in the pages which follow.

4. The problem of this book

Twofold purpose of the book. The survey movement has brought into practical use not only our rapidly expanding knowledge about educational phenomena in general, but also the various scientific methods and devices which have been developed in recent years in our university laboratories and classrooms and in a few recently established bureaus of educational research. It is not merely the purpose of this book to outline a plan for making a formal and finished survey of a school system, but quite as much to show how the principles, methods, and devices of the modern school survey may be utilized by superintendents, principals, and teachers in the practical management of a school system.

The assumption is that there can be no intelligent administration, supervision, or teaching without: (1) a reasonably scientific determination of *aim* and *procedure;* followed by (2) a *critical evaluation of results obtained;* together with (3) an *interpretation of these results for future policies.* That is precisely what a survey is. It is further assumed that a modern school system must be continually in process of being surveyed, and that the teaching and administrative staff must in the main be the surveyors.

If the outside expert can go into a city and, by investigation and study, criticize the general policy of the schools, it should be possible for a superintendent to make such a study for himself before formulating his policy. Similarly, if the expert can check up the organization or the results of in-

struction in terms of accepted principles and usable standards, it should be possible for local authorities to apply such checks while the organization is taking form or as the instruction proceeds.

To bring together in brief space the essential guiding principles and the scientific tools and devices in education, and to show how and where these apply, not only in a survey, but at all times in the practical management of a school system, is the aim of this book. The book is addressed, therefore, not so much to the educational expert as to advanced students of education, and to the superintendent and those who are responsible with him for the making and carrying out of educational policies.

This does not assume that surveys by outside experts will cease to be useful, for they will not, but it does assume that administration, supervision, and teaching can go forward intelligently only as the directors of these processes are continually planning and checking up their work by the methods which we commonly call the survey.

The plan of the book. In undertaking to outline a plan for a survey, the writer has in mind the importance of taking but one step at a time, and of taking each step in the light of the largest possible perspective. To this end the book will be divided into three parts. In Part I we shall deal with the larger problems of administration; in Part II with the problems of internal administration and management; and in Part III with the efficiency of the instruction and supervision for which the administrative machinery exists. In this order we shall move logically, step by step, from the very beginnings of the system to the final product turned out.

Part I will deal with the formulation of a policy, or of the community's educational aims; with the legal basis, and the main system of administration; with the financial and business management; with the buildings and the building pro-

gram; with the staff; and with the system of records and reports by means of which the school machinery is made to operate.

Part II will deal with the problems of organizing the children; with the courses of study; with child accounting; with the daily program; with the system of grades and marks; and with the problem of vocational and educational guidance.

Part III will deal with the measurement of instruction; with the plans and processes of supervision; with health supervision; and, finally, with the place and functions of research in the school system.

5. The functions of a school survey

As an aid in the formulation of a policy. The earlier surveys laid rather more stress upon evaluating the efficiency of school systems, as they were found, than upon the problem of formulating policies and plans. The later tendency is to furnish not only a critical evaluation of the system as it is operating, but to present and interpret the facts necessary for the formulation of a school policy for the future.

It is comparatively easy to carry out a plan of action in education, once it has been formulated. The statement of aim, and the determination of a line of procedure require insight and a comprehensive understanding of the whole situation involved. If for no other reason, economy alone demands that the modern school system must be operated in terms of a definite policy, and this applies to the work of the teacher as well as to that of the superintendent.

A full statement of a school policy would include:

1. A statement of aims.
2. A plan of procedure for the attainment of those aims.
3. A statement of the principles that are to guide in the execution of the plan of procedure.

The superintendent must decide whether the schools should provide training for all the people, or for the children alone; whether that training shall be purely bookish and academic, or in part vocational in character; whether he will use a budget system of finance, or no system; and whether he will employ a relatively large or a relatively small staff. The supervisor must determine the general aims of instruction, and must follow some consistent plan in the training of his teachers. The teacher must determine the specific aims of her instruction, and be guided by certain principles in the management of her pupils. Thus, every school officer, not only must aid in the execution of the general policies of the schools, but each must formulate his or her own lesser policies touching the details of the larger plans. In all this there must be a reason for every decision, and that reason must be based upon facts. To *find* these facts, and to *interpret* them, is the function of the school survey.

As an aid in evaluating results. The final test of any policy is what it is able to produce. Accordingly the formulation of a policy is but step number one, and must be followed by an equally careful evaluation of the results of the operation of the policy. The superintendent must be able to determine what quality and how much of everything he is getting for the money expended, or he will not be able to say whether his financial policy is good or poor. How good is his teaching staff? How suitable are his buildings? How effective is his plan of organization? Such questions as these he must answer in definite terms if he is to carry on an efficient administration. Similarly, the teacher and the supervisor must measure the results of their work, and check those results against the aims toward which they have worked.

The school survey has attacked these and the wide variety of problems they suggest, and has made practical use of

many methods and standards by which it is possible to measure the efficiency of the school machinery and school processes in these respects. For the superintendent, then, the survey must be used both to point the way and to measure achievement. By its use he will be able to set up legitimate aims, to proceed intelligently and economically to their realization, and to make an inventory of his system when such information is needed.

Other lesser functions. Aside from these there will be many important subsidiary ends which the survey will serve. It will provide the superintendent's office, or some special office in the school system, with a vast amount of well-arranged information about the school system. There will be a series of maps of the district, showing the distribution and types of population, by districts; maps showing parks, playgrounds, museums, libraries, and other public places and institutions as they are being or may be utilized to supplement the work of the schools; maps showing the reasons for and the kinds of occupational training needed; etc. There will be charts presenting in graphic form the history of school tax-rates, bond-issues, expenditures, growth of school population, attendance, retardation, the curriculum, and the results of instruction, as well as many current matters in which it is worth while to have the teachers and the public interested. There will be drawings, blue-prints, photographs, and sketches from which any feature of its school plant, such as floor plans, toilets, heating and ventilating system, and playground facilities, may be intelligently studied. Then there will be innumerable tabulations of original data, carefully filed, so that there is at once available not only for the schools, but for all properly interested persons, a large amount of readily accessible and easily understood information about the schools.

A school system in which a survey has been made or is in

process receives an excellent stimulus for good work. Every member of the staff is on the alert, not only because all know that facts and not sentiments or good intentions are going to count, but because the critical attitude of mind becomes contagious. So in numerous ways, direct and indirect, the community and the schools are benefited by the school survey.

6. How a survey is to be made

The essential steps. How to make a survey is the problem which this book has set for itself. Here, as a means of orienting the reader with reference to the task ahead and so of making somewhat clearer the nature of the problem for which the above plan has been outlined, we shall attempt to explain in a few words what is to be treated at length in succeeding chapters.

As we have defined a school survey above, there are four main aspects of the problem or four separate steps in the procedure. First, we must find out what kind of a scheme of education is needed; second, is the financial capacity of the community able properly to fulfill these needs; third, to what extent do present school provisions satisfy the proper needs; and, fourth, what constructive proposals are desirable in order to bring the schools up to the best that the community can afford.

These four problems are worth keeping in mind, at every step in a survey, as a constant check upon the work. It will tend to prevent one from confusing what a school has or is doing with what it should have or should be doing. Further, it tends to keep recommendations within reach of the proper needs and within reach of the community's capacity to meet those needs.

A clearly defined purpose. This emphasizes the necessity for having a definite purpose. If a school survey is to be

undertaken, it must be for the purpose of accomplishing something. Its objectives must be clear if they are to direct the program of study. The purpose may be general or very specific, it may be comprehensive or very narrow. In any case it must be so well understood that one cannot easily fail to distinguish between lines of investigation, methods of procedure, results, and discussions that are pertinent and others which are not pertinent to the desired ends. Survey work is not easy work. It is time-consuming and costly in money, and no community should be willing to pay for it, and no school staff should be willing to do the work, unless it promises to improve the schools.

The aims of a survey will necessarily grow out of the needs of the schools which led up to it. A new building program must be undertaken. The curriculum must have a thorough revision. Taxpayers are complaining bitterly of costs. An old academic high school once in a residence section, but now in an industrial district, must be converted into a polytechnic school. Retardation studies show that the scheme of grading and promotion is unsatisfactory. All these suggest needs that may call for special surveys, and when a number of these appear at once, a comprehensive survey may be the best solution.

On the other hand, a new superintendent may be appointed. Not being familiar with the city or its schools, he desires to get into touch with the situation. He does not know needs, capacity to meet needs, what they have, or what he may wish to undertake. He cannot accept another man's work and carry on blindly. He must check the accounts and count the cash, as it were, and make the program and the policy his own. This he cannot do without a careful stock-taking of the entire situation. Under ordinary circumstances he should be able, with the help of his staff, to organize and carry out the studies needed.

Such a situation as this seems to furnish a desirable viewpoint from which to write this book. The aim of the new superintendent would have to be definite. He must have a policy and a program. The survey is a proper means by which this policy and program may be developed.

The preparation of plans. Once the objectives to be attained in the survey have been clearly thought out, a plan for carrying out the necessary studies must be prepared. When must the work be completed, what members of the school staff are competent to take major responsibilities, how can their programs be adjusted so as to free these people for service, where can clerical service and typing and computing machines be obtained, what pieces of work should be started first, how should the work be laid out — these and many similar questions must be settled. The staff must be brought together and the plans and purposes worked out in detail so that the survey will become a personal concern to each member.

Gathering data. Once the plans are ready, the survey may be put under way. Then a knowledge of the necessary technique must not be lacking. Quantities of facts are to be assembled, all with reference to predetermined aims. Time must not be wasted in gathering needless data, or in handling the data once they are gathered. A few general working principles will be of service if they are carefully observed. How to observe them will be made clear as we proceed. These principles may be stated, as follows:

1. No data should be collected that do not show promise of being useful.
2. Data must not be collected or facts selected merely to make an argument. All aspects of a subject must be studied.
3. The form in which data are gathered should have a view to economy in classification and tabulation.
4. Fact should be carefully distinguished from opinion, and the sources of both must be trustworthy.

5. Where mere samples of data are used, care must be taken that the samples are representative and sufficiently extensive.
6. Where comparative methods are used, there must be sufficient basis for comparison.

If these principles are kept in mind as the data for a survey are being collected, time and energy will not be wasted in gathering needless facts; partial and hence incorrect conclusions will not be drawn; the data will be easily classified; evidence will be evaluated properly; mere scraps of evidence will not be permitted to mislead; and unfair comparisons will not be made.

The interpretation of data. There are no set rules by means of which we can teach people how to interpret facts. We may teach logic and scientific method, but we can scarcely hope to teach people to imagine, to discover. Our nearest approach would be to illustrate how one can make a critical examination of a set of facts when the facts are before him. Let us suppose that our survey shows that forty per cent of the population of a city is foreign. Let us set that fact before us and ask what it means, as follows:

1. What does it mean for the general aims of education? Obviously, if these people and their children are to become Americans, we must make it the business of the schools to meet that need.
2. What does it mean for the curriculum? How to speak and write English, and how to understand American customs and government are samples of special curriculum needs in English, civics, and history.
3. What does it mean for the support of the schools? A large percentage of the foreigners who come to America come with a hatred of taxes, and with little or no training in actual participation in the management of schools. Their attitude toward large expenditures and toward bond-issues is a force with which the school policy has to cope.
4. What does it mean for the management of the children? The foreign child, and even more the foreign parent, does not

readily fall into the American ways of managing school children. To gain and hold the sympathetic coöperation of parents in such a school is a serious problem, and one the superintendent cannot ignore in the assignment of his teachers and principals.

A second illustration may suffice. Suppose our survey shows that the expenditure for teachers' salaries is relatively low. Then we may ask what this fact means:

1. For the adequate staffing of the schools? Obviously higher salaries elsewhere will keep away the best teachers, and may even cause the more progressive teachers to leave, inevitably forcing the city either to a small well-paid, or a large but poor staff.
2. For the quality of teaching? Unavoidably the standards would be lowered either by inefficient teachers or by overcrowded classrooms.
3. To the community? It would mean that the community would lose the influence of that leadership which it should expect from a body of well-trained teachers.

These two brief illustrations will at least suggest the sort of viewpoint which the surveyor must learn to bring to bear upon his data, once they have been gathered and classified. If before beginning a survey, care is taken to determine fully what the survey is for, a good first step will have been made. If care is exercised in planning the work and in gathering and classifying the data, with quite definite ends in view, a second important step will have been taken. Neither of these, however, will complete the work of interpretation — part of which has to do with diagnosis, and part of which has to do with prescription.

Reporting the findings. How a survey is to be reported depends entirely upon the purpose for which the survey was made. If the purpose was to inform the local community, it should be reported briefly and in simple language, and with emphasis upon the essential points and what these mean for

future action. If the report was primarily for the information and guidance of the staff and the board of education, the report might be in greater detail and in more technical form. If it is to be addressed to the general public, everywhere, then some middle ground between these extremes would be suitable, if we are to judge by the best reports thus far made. The very long report tends to confuse the reader, while the over-technical report, whether long or short, is read by but few people. In reporting a survey there is a temptation to the writer to set forth the many details with which he has to deal, but to do so, except for well-trained and interested readers, is to defeat the purpose of the report.

The following chapters of this book will not only attempt to focus the attention of the reader upon an orderly arrangement of the essential problems with which a school administrator must deal in a survey of his school system, but, as well, upon how to make a systematic study of these many aspects without losing the perspective of the one who must view the system as a whole.

QUESTIONS FOR CLASS DISCUSSION

1. What is the origin of the term *survey* as used in education?
2. What are the four main problems of a survey?
3. Define: *research, survey, investigation.*
4. Describe the earliest educational survey of which we have record. (See Wells, Guy F.: "The First School Survey"; in *Educational Review*, vol. 50, p. 166, September, 1915.) Contrast with recent survey reports.
5. Describe some of the earlier types of educational surveys made in European countries. (See Mahoney, James: *Some Foreign Educational Surveys*, United States Bureau of Education, Bulletin no. 37, 1915.) How do these compare with recent American school surveys?
6. What is meant by *survey technique?* By *constructive criticism?* By *device?* By *working principle?*
7. Compare the *Survey Reports* of East Orange, New Jersey (1912), Boise, Idaho (1910 and 1913), and Baltimore (1911), with the *Baltimore Report* of 1920–21, or the *Philadelphia Report* of 1922.
8. In what terms would you try to define the educational needs of a community? Are the data presented in Chapter I of the *Report* of

the San Francisco Survey pertinent to this end? (See also chap. III of Volume I of the *Philadelphia Survey Report*.)

9. Mention as many reasons as you think might be found for making a comprehensive survey of a school system.
10. Suppose a school board wanted a survey made, ostensibly for the purpose of helping the schools, but in reality in order to get rid of certain members of the staff. Should any one undertake the survey, knowing the secret motive of the board?
11. Suppose a survey by any outside expert should discover that school moneys had been misappropriated by the board of education. How should the matter be handled, assuming that the expert is in the employ of the board of education?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Examine five surveys that were made before 1914, and five that have been made since that date (see list of Surveys, at end of volume), with a view to noting any change in the purpose of the school survey as indicated by those reports.
2. What is meant by school policy, and who formulates it? What does it mean to gather and use facts in formulating a policy?
3. Examine five recent school survey reports, and compare their plans of organization and the subjects treated with the outline of this book, as set forth in this chapter.
4. Enumerate the essential steps in making a survey, and discuss each step with reference to a hypothetical survey of your home city.
5. Apply this conception of a survey to a selected list of published survey reports.

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Also see the Library Leaflet no. 12, 1920, of the United States Bureau of Education for an extended bibliography of surveys made.

PART I

THE LARGER PROBLEMS OF ADMINISTRATION

CHAPTER II

THE BROAD OUTLINES OF A SCHOOL POLICY

1. The superintendent's first task

Survey and administrative viewpoints the same. When a new superintendent enters upon the duties of his office, his first need is for general orientation with reference to the entire school situation. What sort of educational facilities does the city have at present? what is its financial ability to support schools? and what kind of educational provisions does it need? He must get answers to these questions before he can feel himself the real directing head of the system. In the same way the outside expert who is entering upon a school survey must first of all get a general bird's-eye view of the system from these same angles, if he is to give intelligent direction to the various lines of investigation that are called for by a survey.

These questions can be answered in general terms by a study of the economic, social, and physical aspects of the community, and by a general description of the school system as it operates. They can be answered in full detail only by an exhaustive study of all these fields. The general view of the situation will be necessary as a means of orienting the detailed studies necessary in a survey or necessary in the development of an administrative policy, and hence we set this as the first subject for treatment in our study of school survey technique. This proceeds on the assumption that neither surveyor nor superintendent can wisely begin work with a predetermined school plan or program.

The first step. The first step, then, is to examine these large and dominating factors in the situation. We approach

the system with the idea that the character of its people, their social and occupational life, their ideals and aspirations, and the physical conditions under which they live are the factors that must largely determine the character of the school system to be provided. We realize, too, that the extent of the provisions to be made must finally check with the financial capacity back of the plan of support.

Once these aspects of the community life have been examined, we are then in a position to get an intelligent view of the school system as it is. If the school system recognizes the essential needs of the people it will be fairly evident from such a general review of the situation. If it does not, or if it is decidedly short in the extent of the provisions made, that also will be clear, and we shall then know how to proceed with such detailed studies as will help to show what reorganizations or expansions are needed.

It will be the purpose of this chapter to explain and to illustrate methods for making these three general preliminary studies which are to furnish the fundamental background for the superintendent's policy, and which will provide a constant check on the details of the survey which is to follow. It will be with reference to the facts brought out by such a study that the survey will make its criticisms and proposals affecting the schools as they are, and as they ought to be.

I. Facts about the Community's Educational Needs

1. The fact basis of the school policy

Three sources of information. In order to get clearly in mind the kinds of facts we are to be concerned with in this pre-view of the situation, let us first sketch out each of the three fields — the social, the economic, and the educational — and suggest the lines of investigation it will be necessary

to pursue in order to answer our questions. With such an outline before us, we shall then proceed with illustrations of how these facts may be gathered, analyzed, and interpreted for use in a survey or in the formulation of an administrative policy.

1. Facts about the educational needs of the community. A bare list of these facts or groups of facts about the community's needs would include the following:

a. The location of the city with respect to other large population centers, the chief commercial routes, climate, and natural resources.
b. Its size, and the rate of growth of the population.
c. Racial and social composition of the population.
d. Status of the city from the standpoint of literacy.
e. The main occupations of the people.

2. Facts about the community's capacity to pay for education. To show the community's ability to pay for schools we need to know:

a. The size of different age and sex groups.
b. The sources and extent of the wealth (or income if possible) of the people.
c. The sources and extent of the city's income.
d. How the city spends its money.

3. Facts about the schools. A similar list of facts about the schools would include:

a. The extent of the plant and equipment.
b. The distribution of these facilities throughout the city.
c. The types of schools and classes.
d. The teaching, supervisory, and administrative staff.
e. Income and expenditures.
f. The curriculum.

2. Location and description of the school district

The need for maps. Once the aims and extent of the survey have been decided upon and the survey staff chosen

the first step is to obtain a general view of the entire situation. This will call, first of all, for maps. If the city is small one map will suffice very well, but for a large city more than one map will be needed if much detail is desired. If the superintendent's office is not provided with adequate maps of the district he will find it worth while to prepare several, not only for immediate use in the survey, but for future reference as well.[1]

On these maps the following data should be recorded:

1. The city and the school district boundaries.
2. The attendance district boundaries.
3. The location of school buildings, with different symbols for different types of schools.
4. Railroads, rivers, car lines.
5. Parks, playgrounds, libraries, museums.

The map should indicate what lies outside the district boundaries, and should be provided with index of directions, units of distance, proper explanation of legends, and a full and clear title.

In addition to the above, which may be regarded as the minimum amount of map data for a survey, additional maps showing elevation, location of various types of industrial and residence sections, distribution of racial groups, density of population, street maps, and tendencies toward expansion will be useful for ready reference in a detailed study of the city's school needs.

A typical illustration. Figure 1, taken from The Boise Survey, illustrates very well what might be map number one

[1] As an illustration of the value of maps as aids in interpreting a school situation, see the following *Survey Reports:* Alabama, Baltimore, Gary, Janesville, Nassau County, Portland, San Francisco, Springfield, Vermont, and Washington State.

Note: Throughout this book reference to Survey Reports will usually be made by the names of the cities or States surveyed. The full title and publisher of each will be found in the bibliography at the close of the book.

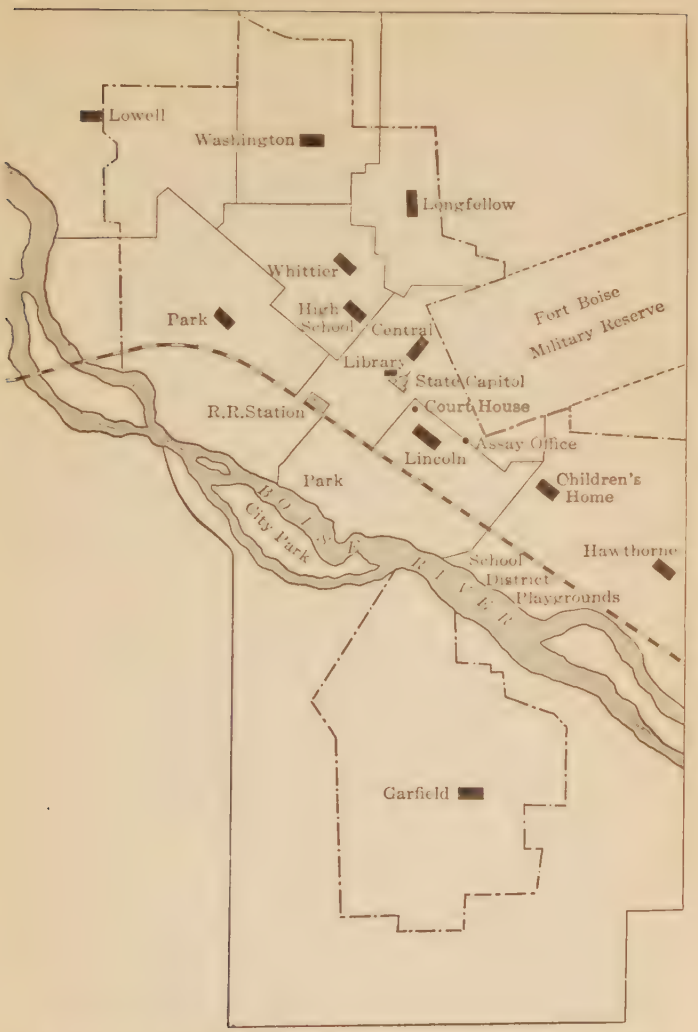

FIG. 1. MAP OF BOISE, IDAHO, SHOWING LOCATION OF SCHOOLS, ATTENDANCE DISTRICTS, PUBLIC BUILDINGS, CITY AND DISTRICT BOUNDARIES, AND PARKS AND PLAYGROUNDS.

—— . —— City boundaries
———— District boundaries

in a series which the superintendent should have for constant use in his office. From this it is possible to see the relation of city to district boundaries, the number and location of schools with reference to boundaries, railroads, parks, library, and government buildings, the types of schools available, and the size of the attendance districts. By the legends it is possible at a glance to estimate distances, locate different types of schools, see how far children have to walk to school, locate the dangerous crossings, and to figure out possible uses of park, library, likely places for field trips, probable directions of the city's expansion, and many other things.

Such a picture is easier and more rapidly read than is a printed description, and a constant study of the types of maps here suggested is the best insurance against a partial or one-sided viewpoint in the formulation of a school policy.

Other general information. In addition to maps, certain general information about the city is needed. Facts about its history, climate, rainfall, elevation, density of population, possibilities of the city's expansion, its position relative to other population centers, and the kind of country surrounding it will help to give one a clearer sense of its financial, occupational and social future, and of its educational needs and possibilities as well.

Sources of such information. Official road maps and guide books, publications of the United States Bureau of the Census, official city and county documents, State reports, and chamber of commerce publications are the best sources in general. There may be local histories, geological survey maps, reports of special commissions, historical collections, museum materials, and early newspaper and magazine files, each of which would have value for one or more lines of information, accordingly as one wished much or little detail.

As suggested above, the aim and scope of the survey should be carefully determined at the outset, and at every point the superintendent will need to warn his staff against the dangers of converting the survey into such a detailed piece of academic research as would defeat the purpose in making it.

3. The city's size and rate of growth

Plans for a proper handling of the financial problems, the building program, the special-schools program, the development of the administrative machinery, and the development of library and laboratory equipment, as well as for many lesser matters, can be intelligently determined only when we have before us facts that reveal the probable rate of expansion in population and wealth.

Kinds of data necessary. For a study of this kind we need such facts as are presented in Tables I and II. Table I shows the population of the city of Rochester and of the State of New York, together with rates of increase in population for the United States, New York, and Rochester through a period of six decades. From such a table it is clear that Rochester is not only growing rapidly in comparison with the State and with the United States, but that it is maintaining a relatively high rate of growth.

Table II shows Rochester's population and growth in comparison with a number of cities of the same class, and amplifies the evidence shown in Table I.

What these facts mean. These facts indicate that Rochester must prepare for expansion in every line of its school work. The building program must have in mind the probable school population of five, ten, or even twenty years hence; care should be taken not to bond the future too heavily; the organization must have in mind the lines of expansion that will be necessary; and the library and labora-

tory facilities of the schools will have to be enlarged. All these problems can in part be clearly foreseen by a study of this one set of facts relating to the city's growth.

TABLE I. ROCHESTER'S RATE OF INCREASE IN POPULATION, AS COMPARED WITH THOSE OF NEW YORK STATE AND THE UNITED STATES

(United States Census Data)

CENSUS	POPULATION OF STATE	POPULATION OF ROCHESTER	PER CENT INCREASE OVER PRECEDING CENSUS		
			United States	New York	Rochester
1920...	10,385,227	295,750	14.9	14.0	35.6
1910...	9,113,614	218,149	21.0	25.4	34.2
1900...	7,268,894	162,608	20.7	21.1	21.4
1890...	6,003,174	133,896	25.5	18.1	49.8
1880...	5,082,871	89,366	30.1	16.0	

TABLE II. SIZE AND RATE OF GROWTH OF SELECTED CITIES

(United States Census Data)

CITY	POPULATION		PER CENT OF INCREASE	
	1910	1920	1900–1910	1910–1920
1. Los Angeles, Cal.....	319,198	576,673	211.5	80.7
2. Richmond, Va.....	127,628	171,667	34.5	50.1
3. Rochester, N.Y.....	**218,149**	**295,750**	**35.6**	**34.2**
4. Minneapolis, Minn....	301,408	380,582	48.5	26.0
5. Grand Rapids, Mich...	112,517	137,634	28.6	22.3
6. Denver, Colo.....	213,381	256,491	59.4	20.2
7. Newark, N.J.....	347,469	414,524	41.2	19.3
8. Albany, N.Y.....	100,253	113,344	6.5	13.1
9. Jersey City, N.J.....	267,779	298,103	29.7	11.3
10. St. Paul, Minn.....	214,774	234,698	31.6	9.3
11. Lowell, Mass.....	106,294	112,759	11.9	6.1
12. Providence, R.I.....	224,326	237,595	27.8	5.9

4. Racial composition of the population

Racial homogeneity an asset. In America racial differences tend roughly to coincide with certain social, occupational, and economic differences which count for much in education.[1] It is easy to list a large number of school problems that are created by the presence of large numbers of children of the foreign-born. There is first of all the problem of learning to speak English. The social inheritance of the foreign child, too, makes civics and history especially difficult for him, and especially important for the

TABLE III. COMPARISON OF CITIES WITH RESPECT TO THE RACIAL COMPOSITION OF THEIR POPULATIONS (1920)

CITIES	NATIVE WHITE		FOREIGN-BORN WHITE	NEGRO
	Native Parentage	Foreign or Mixed Parentage		
Indianapolis, Ind.	69.8	13.8	5.4	11.0
Birmingham, Ala.	51.6	5.7	3.4	39.3
Cincinnati, O.	51.5	30.3	10.7	7.5
Grand Rapids, Mich.	40.7	37.8	20.6	0.8
Rochester, N.Y.	37.9	37.4	24.1	0.5
Pittsburgh, Pa.	36.8	36.3	20.4	6.4
Minneapolis, Minn.	35.0	40.8	23.1	1.0
Scranton, Pa.	35.4	43.5	20.7	0.4
San Francisco, Cal.	33.0	36.0	27.7	0.5

Note: The 1920 Census shows sixty-eight cities of this class (100,000 population or over). Only thirteen of these have a lower percentage of inhabitants who are native born of native parents than has San Francisco. The above cities were chosen merely for illustration. A real survey would include more cities, and a random rather than a selected group as here.

[1] This is due to the character of our immigration. Economic causes, rather than political and religious distress, have sent the laboring classes from Southern Europe to this country during the past half-century. That there is some correlation between intelligence and social and economic status there is little doubt.

country. Still more, large numbers of our foreign children are compelled to leave school at an early age to earn a living. For these and other reasons special provisions must be made wherever the number of foreign children is large. Thus, in educational aim, and all that that means for organization and management, racial homogeneity means unity and hence economy, whereas racial heterogeneity means diversity and therefore larger costs.

How to study the problem. From the census reports it is possible to obtain the facts for the kind of study needed. We wish to know two things: first, what is the present racial composition of the population; and, second, what seems to be the tendency toward increase or decrease among the various groups. An answer to the first of these questions may be made both in the absolute and by comparison. We may show the distribution of racial groups for a number of cities and arrange the data so that easy comparison may be made, as in Table III, or we may collect data for a given city, as for San Francisco, as shown in Table IV.

The second question may be answered by use of such data as is shown in Table IV.

A mere glance at Table IV shows that San Francisco has a very large foreign or partially foreign element, scarcely more than one child in three being native-born white of native-born parents. Furthermore, of the foreign element, a relatively large percentage is either Oriental or from those parts of Europe that have in recent years sent mainly an inferior social group to this country. Table III shows some of these facts for San Francisco, in comparison with other cities of the same class. From these tables it is clear that San Francisco is more largely foreign than are other cities of the same class. It contains the largest percentage of foreign-born people, and the smallest percentage of native-born whites of native stock.

TABLE IV. SHOWING CHANGES IN THE RACIAL COMPOSITION OF THE POPULATION OF SAN FRANCISCO AND CALIFORNIA THROUGH A PERIOD OF FOUR DECADES

RACIAL GROUP	1920	1910	1900	1890
I. State of California:				
Native white, native parentage	49.0	46.5	43.4	41.0
Native white, foreign or mixed parentage	26.4	26.7	29.7	26.4
Foreign white	19.9	21.8	21.3	24.2
Negro and all other	4.7	4.9	5.6	8.4
II. City of San Francisco:				
Native white, native parentage	33.0	27.7	24.4	20.8
Native white, foreign or mixed parentage	36.0	36.9	40.1	35.8
Foreign white	27.7	31.4	30.4	33.9
Negro and all other	3.3	4.0	5.1	9.4

Our second question, what is the tendency toward increase or decrease in the foreign element, is answered by Table IV, which shows that in both the city and the State the percentage of native whites of foreign parents is decreasing, that the proportion of foreign-born whites is approximately stationary, and that the proportion of Negroes, Orientals, and others is on the decrease in both the State and the city.

Significance of these facts. Since San Francisco has many children of foreign birth and parentage, it is obvious that the special problems above mentioned will have to be solved in its schools. It should mean smaller classes, specially trained teachers, a modified curriculum, early offering of vocational studies, night classes for young adults, and an extensive Americanization program — all of which will mean increased cost, and special problems in administration and supervision.

Since San Francisco is more foreign than the cities with

which it has been compared, it follows that suggestions, but not standards for cost or for any of the items here mentioned, can be borrowed from the experience of other cities of that size. San Francisco must spend relatively more, and must make relatively more extensive provision for its foreign children than will be necessary for any of the remaining cities in our Table.

5. The problem of literacy

Literacy and public education. Until recently schools have been conducted solely for children. Gradually, however, the viewpoint is changing, with the result that schools are now being opened to people of all ages. The necessity for this change is obvious when we consider the significance of illiteracy in a democratic State. Without arguing the question at all, we will only point out here that the State is clearly responsible for doing away with illiteracy, that this can be done only by some plan of education, and that the present school system is the best means we have for attacking the problem. Accordingly, data on the literacy of the population are essential in formulating the general outlines of a school policy.

How the problem may be studied. Detailed information for a study of literacy is obtainable in the Census Reports of the Federal Government. For the cities of 100,000 population or over, the total range in illiteracy, in 1920, was from .8 to 12.1 per cent of the population ten years of age or over. If we were surveying San Antonio, Texas, we should study it in comparison with at least twenty of the cities of this class. Table V is sufficient to illustrate the method of study, and the cities have been deliberately chosen so as to make the evidence clear.

From this table we see that San Antonio occupies a very unfavorable position among cities in the matter of illiteracy,

being the highest in our table. Furthermore, the table shows that illiteracy is decreasing in all the cities included except San Antonio and Portland. The statement may be made, therefore, that San Antonio has an especially difficult problem to meet since its illiteracy is both large and increasing.

TABLE V. PERCENTAGE OF ILLITERATES IN POPULATION, TEN YEARS OF AGE AND OVER (1910, 1920) IN CERTAIN SELECTED CITIES

CITY	1910	1920	TENDENCY	
			Increase	Decrease
San Antonio, Tex.	10.1	11.4	1.3	..
Nashville, Tenn.	8.8	7.2	..	1.6
New Orleans, La.	6.9	5.9	..	1.0
Newark, N.J.	6.0	6.0	..	..
Philadelphia, Pa.	4.6	4.0	..	0.6
St. Louis, Mo.	3.7	2.7	..	1.0
San Francisco, Cal.	2.1	1.9	..	0.2
Portland, Ore.	1.2	1.7	0.5	..

A further and a similar study ought to be made for the entire State of Texas. If it should appear that the burden of the task of doing away with illiteracy in the State falls largely to the city of San Antonio, then two lines of argument are clear. First, San Antonio is responsible for setting new standards in providing the kind of education needed. The city owes it not only to its own people and to the people of the State alone, but to the entire country as well to study and experiment on a large scale until a solution of the problem is found. Second, in view of the fact that the State's illiterates probably tend to drift to San Antonio, the State ought to bear part of the extra burden of training them.

6. The occupations of the people

Occupations and education. The connection between the occupational activities of a people and the aims of their school training is too obvious to need extended explanation or argument to-day. Just what that relationship is in detail may not be so fully understood.

TABLE VI. PERCENTAGE OF POPULATION, TEN YEARS OLD OR OLDER, WHO ARE ENGAGED IN THE VARIOUS OCCUPATIONS

OCCUPATIONS	ALBANY	CHICAGO	DENVER	BOSTON	PORTLAND	WORCESTER
Agriculture, forestry, and animal husbandry	.7	.4	1.9	.7	2.8	1.2
Extraction of minerals	.03	.1	1.4	.05	.4	.1
Manufacturing and mechanical industries	37.0	42.3	31.4	35.7	36.4	55.2
Transportation	11.8	9.9	10.4	10.4	12.8	6.2
Trade	15.3	16.3	19.2	16.8	18.0	11.9
Public service	2.0	1.6	1.3	2.2	1.5	1.6
Professional service	6.6	5.2	8.5	6.7	6.7	5.7
Domestic and personal service	15.2	11.9	16.7	16.9	12.6	10.6
Clerical occupations	11.3	12.3	9.2	10.5	9.0	7.5

Knowledge of occupations may be imparted either as preparation for a career or as a part of a child's general education. "Preparation for a given career in an occupation,"

and "preparation for general social participation" are both important aims, and both call for instruction touching the occupational life of the people among whom the child is living, and among whom he is likely to live as an adult citizen. Accordingly, in laying out the general school policy, the survey must bring together and interpret the important facts touching this subject.

The data necessary. Data for such a study may be obtained for any of the larger cities from the reports on occupations published by the United States Bureau of the Census. Table VI illustrates how such data may be arranged for study. All the hundreds of occupations are reported separately in the Census Reports, but they are also grouped under the nine heads given in the left-hand column of this table.

From this table it is possible to see at a glance that Chicago, with 12.3 per cent of its workers engaged in clerical pursuits, offers better opportunities for stenographers and bookkeepers than does Worcester, with but 7.5 per cent of its workers so engaged. Again, we see that Worcester has a very high percentage of its people engaged in manufacturing and the mechanical industries, and but a low percentage engaged in trades, whereas Denver has the reverse of this.

What such facts suggest. It is in the light of such facts as these that a superintendent is able to decide such questions as: What emphasis shall be placed upon commercial subjects? To what extent should laboratories be equipped for preparing children for the mechanical industries? Should trade training be introduced? In Worcester it is very clear that much provision should be made for introductory instruction, and some provision for more advanced work, in the mechanical industries. Denver is more of a residential city, and the trades and domestic and personal-service groups of occupations are relatively more important.

More detailed information needed. For final decision as to just what courses and equipment to provide, a more detailed study of the statistics would be desirable. If it is found that a very large demand exists for stenographers, bookkeepers, printers, or woodworkers, then the schools must provide adequately for such needs.

II. Facts about the Community's Capacity to Satisfy Needs

1. The problem of school support

Relation of need to economic capacity. The question of a community's capacity to support public education becomes slightly complicated when we ask, How much education? In general it seems safe to say that in present American practice we have accepted the principle that, as a democratic state is dependent upon the intelligence of its citizens, we are in consequence obligated to furnish not only such an amount of schooling as is necessary to provide all children with the simple tools of knowledge, but with some understanding of our social, political, and economic past and present as well. It probably is safe to assume, too, that the elementary school represents our present conception of a proper means for accomplishing these ends.

Beyond this minimum (and this minimum is moving upward, as our compulsory school laws and child-labor laws suggest) and up to a full satisfaction of reasonable needs, the amount provided for can properly depend upon economic capacity. While the minimum we must regard as among the national necessities, just as armies, police, and courts are necessities, that beyond the minimum we may class as highly desirable, but not as an absolute necessity. The one we must purchase regardless of the cost or the sacrifice, just as we purchase food, shelter, and protection to person and

property. The other we should purchase as long as the sacrifice is not too great.

What is regarded as a heavy sacrifice or a high tax-rate in one community may not be so considered in another community. This may be due either to differences in social standards or to differences in economic capacity. That social and intellectual standards are very large factors in determining the willingness of any community to pay high taxes for schools there is no possible doubt, yet, for the sake of rationalizing our procedure, if for no other reason, we must be able to determine whether the burden, or the capacity of a community to bear burden, is really large or small. Accordingly, we shall outline here a plan for measuring a community's capacity to support schools.[1]

2. Size of different age and sex groups in the population

Age and sex groups and earning power of the city. Part of the population of every city is made up of people with but little or no earning power. There are the dependent children who are as yet too young to earn much, and the old people who for one reason or another are no longer economically productive. Between these two extremes lies the wealth-producing power of the community. The best of that power lies within the group of men who are between the ages of twenty-five and forty-five years, a period when men are most active and aggressive in earning. A third group, whose earning power is still quite limited, is that of the female sex of all ages.

Accordingly, the city which contains relatively the largest number of men from twenty-five to forty-five years old is the city, other things being equal, whose earning power should

[1] At this point we are not considering the question of what part of the total burden is borne by district, county, or State support. For this see Chapter IV. Here we are considering a measure of economic capacity only.

be the highest. Similarly, if a city contains relatively large numbers of women and of young and old dependents, its earning power should be relatively lower.

Age groups and school costs. Another use we have for such statistics is the light they throw upon the size of the school population, and hence upon the educational burden the city must bear. The city with a relatively large percentage of children has a relatively large educational burden to carry and, other things being equal, must expect its budget for schools to be above that of the average city of its class. Some cities have both large numbers of school children and small numbers of young adults, or, put another way, large educational responsibilities and small wealth-producing power.

The data needed. The data needed to bring out such facts as these for a city can be obtained readily from the United States Census Reports.

Let us assume that we wish to know the percentage of dependents and near dependents, the percentage of vigorous workers, and the percentage of children of school age for a given city. This data, interpreted, will show us the relation of the city's wealth-producing power to the educational and social burdens which it must carry.

Table VII illustrates the kind of data needed, together with a clear and simple method of presentation. The seven cities of the table are so arranged that the one with the lowest percentage of young adults is at the bottom, and the one with the highest percentage of young adults is at the top.

Suppose now that we are surveying Fall River. The table brings out the following facts:

1. Fall River has relatively the smallest earning power, as judged by the percentage of adults from twenty-five to forty-five years old. This is not materially offset by having a relatively

TABLE VII. DISTRIBUTION OF POPULATION BY AGE AND SEX GROUPS, IN SEVEN CITIES

CITIES	MALES TO 100 FEMALES	AGE GROUPS EXPRESSED IN PERCENTAGE OF TOTAL POPULATION					
		Under 5	5 to 15	15 to 24	25 to 44	45 to 64	65 and over
Indianapolis, Ind.	98.7	8.0	15.3	19.4	35.9	17.0	4.3
Boston, Mass.....	96.7	9.5	16.7	18.3	35.1	16.2	4.0
Atlanta, Ga.....	92.8	10.0	17.4	22.3	34.1	13.0	2.9
Lowell, Mass.....	94.0	9.8	17.0	20.1	33.0	15.9	4.1
Nashville, Tenn...	89.6	9.2	17.8	21.9	32.2	15.1	3.8
Scranton, Pa.....	97.9	11.8	20.2	20.8	31.5	12.8	2.8
Fall River, Mass..	93.4	11.7	20.4	20.2	30.2	14.2	3.4

Note: If this table contained twenty-five cities, instead of seven, it would be rather difficult reading. One could not see Fall River's position, in respect to percentage of males, young and old dependents, and school children, without careful examination. Under such circumstances two or three tables would be better — one for sex data, one for school children (5–15 years), and a third for the remaining items. See Tables VI, VII, and VIII, and Fig. 5 in *The Portland Survey*, as illustrations of such a division.

large number of men, since in this respect it is scarcely up to the average for the group of cities.

2. By examination of the table it will be seen that the city has close to an average percentage of people forty-five years old or older; for example, of people less actively engaged in producing wealth.
3. The city ranks high in the percentage of children below the age of five. This means a larger than an average burden of caring for dependents.
4. The city ranks highest in percentage of children five to fifteen years old, or children of school age, and a median position in children of high-school and college age.

Taken together, then, the table shows that Fall River has a relatively large educational burden, that this will continue to be heavy as the years pass, and that the group of aggressive young adults upon whom the burden of support

largely rests is relatively small.[1] If the children of Fall River are to have average schools, therefore, other things being equal, the school tax-rate will have to be high.

3. The city's wealth

Relation of wealth to educational expenditures. A city's taxable wealth, expressed as a percentage of true wealth, is a measure of its capacity to pay for education.[2] It is not, however, a proper basis for determining how much the city should spend, as is suggested by our study of age-groups above, and as will be shown more fully later.[3] Neither is it an index of what cities do spend. If, after a superintendent has worked out his policy, he asks for a large outlay along certain new lines, his best argument is — "The city can afford it." The strongest argument against it is, "The city is already heavily taxed." Consequently, before such a large outlay is asked for, a superintendent must make sure that the city can pay the sum without unduly burdening either the present or the future. There is accordingly need for a study of the city's financial status.

The data necessary for such a study can be obtained from the tax assessor's records, or from the annual publication of the United States Bureau of the Census known as *Financial Statistics of Cities*. The study should show, by comparison with other cities:

(1) The amount of wealth possessed.
(2) The extent to which that wealth is being taxed.
(3) How the money raised by taxes is being spent.

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[1] In this table, Fall River is being compared with cities of 100,000 population or over. It must be remembered that this table is only for illustration. To be convincing it should include not less than twenty cities, and these should be chosen from all parts of the country, unless it is desired to compare Fall River only with cities of the same industrial and social class.

[2] In time we shall have income data which will be a still better index.

[3] See Chapter IV.

How to estimate the city's wealth. To show how much wealth a city possesses, we may take the amount of assessed wealth and, by reference to the basis of assessment, convert the amount into real or actual wealth.[1] If a city has

TABLE VIII. ASSESSED WEALTH, AND REAL WEALTH, PER CAPITA OF POPULATION

CITY	ASSESSED WEALTH	BASIS OF ASSESSMENT (PER CENT)	REAL WEALTH
1. Brookline, Mass.	$3223.58	100	$3923.58
2. Stockton, Cal.	**767.66**	**35–30**	**2242.77**
3. Madison, Wis.	1809.14	94–78	1986.39
4. Charleston, W.Va.	1190.33	70	1700.47
5. Columbia, S.C.	455.42	25	1786.08
6. Shreveport, La.	637.31	40	1593.28
7. Aurora, Ill.	280.39	23	1219.10
8. Stamford, Conn.	1180.35	100	1180.35
9. Niagara Falls, N.Y.	1012.35	90	1124.83
10. Colorado Springs, Colo.	1095.53	100	1095.53

$500,000 of assessed wealth, and assesses on the basis of fifty per cent of the true value, then the city actually possesses $1,000,000 in wealth. This is an important point, because it takes twice the tax-rate on $500,000 that would be necessary on $1,000,000 to raise a given sum of money. Accordingly, it is no argument to say that a city has a high tax-rate, unless its basis of assessment is up to or above average. Table VIII illustrates an assembly of this kind of data, with the city of Stockton as the center for comparisons.

From this table the city of Stockton appears to be a poor city when we look at the amount of assessed wealth per

[1] A city's assets are taxable wealth and credit. When a city is in debt, it has to that extent depleted its economic power. This problem will be treated in Chapter IV. In this pre-view it should not be entirely overlooked.

capita, but, when we read further that the assessed wealth represents but thirty to thirty-five per cent of the city's true wealth, we understand why Stockton holds second to the highest place in column three of the table. In other words, the table argues that Stockton is well able to carry above the average school burden.

How to measure the extent to which a city is taxed. Table IX illustrates how our second question — to what extent is the city's wealth being taxed — is to be answered.

TABLE IX. RATE OF LEVY OF GENERAL PROPERTY TAXES PER $1000 OF WEALTH

CITY	RATE OF TAX-LEVY BASED ON	
	Assessed Valuation	True Valuation
Stamford, Conn.	$23.01	$23.01
Niagara Falls, N.Y.	24.99	22.49
Colorado Springs, Colo.	20.62	20.62
Aurora, Ill.	69.83	16.06
Shreveport, La.	38.75	15.50
Madison, Wis.	16.50	15.02
Brookline, Mass.	14.80	14.80
Stockton, Cal.	**40.96**	**12.98**
Charleston, W.Va.	17.92	12.54
Columbia, S.C.	41.00	10.25

Here we have shown the rate of levy of general property tax per $1000, first, on assessed valuation, and, second, on true valuation. Stockton, again, with a levy of $40.96 on $1000 of assessed valuation, appears to be carrying a heavy burden. Actually, however, that burden is only $12.98 per $1000 of true wealth, which, as compared with the cities of this group, is a very light burden. On the other hand, Stamford, Connecticut, with every dollar of its wealth taxed, and taxed

at the rate of $23.01 per $1000, is carrying a comparatively heavy burden.[1]

How the city spends its money. Our third inquiry, How does the city spend its money? is clearly answered by such information as appears in Table X and Figure 2. Table X compares ten cities, first, with respect to the total costs of their governments, and, second, with respect to the percentage of that total which is devoted to the three important items of education, general government, and police protection.

TABLE X. PER CAPITA COST OF CITY GOVERNMENT, AND THE PERCENTAGE OF ALL CITY EXPENDITURES DEVOTED TO EDUCATION, GENERAL GOVERNMENT, AND POLICE PROTECTION

CITY	PER CAPITA COST OF CITY GOVERNMENT	PER CENT OF EXPENDITURES DEVOTED TO		
		Education	General Government	Police Protection
Colorado Springs, Colo.	$20.10	48.6	9.3	6.7
Charleston, W.Va.	25.44	46.5	13.4	9.2
Aurora, Ill.	20.83	44.7	7.4	9.8
Madison, Wis.	44.91	42.8	6.4	5.4
Stockton, Cal.	40.93	41.3	9.3	7.1
Stamford, Conn.	31.12	34.2	8.3	6.2
Niagara Falls, N.Y.	32.91	28.4	9.1	7.8
Shreveport, La.	43.82	24.9	9.0	10.9
Brookline, Mass.	55.36	23.3	7.5	9.1
Columbia, S.C.	25.47	20.3	8.1	16.4

As judged by per capita cost it will be seen that Stockton holds fourth place in the matter of total outlay for all gov-

[1] In Chapter IV, on "Finance," we shall consider whether there are not other more detailed comparisons to be made, and other than comparative bases for judging whether a given tax-rate is high or low. In other words, we shall show that it is a city's educational needs as well as its financial capacity that must figure in this estimate.

ernment. In the percentage of all expenditures devoted to education it holds fifth place, and, while for police protection its outlay is relatively low, its general government cost is high.

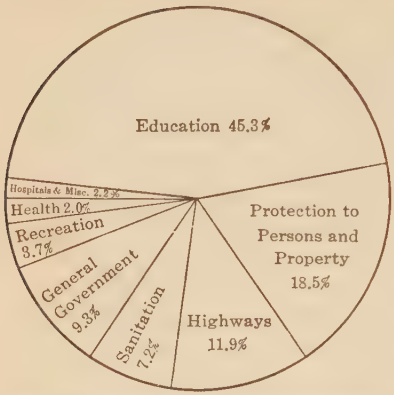


FIG. 2. SHOWING HOW STOCKTON SPENT EACH DOLLAR OF ITS REVENUE IN 1921
(Census Figures, *Financial Statistics of Cities*, 1921)

The details for a single city could be presented in tabular form, but Figure 2 combines the tabular with the graphic method, and reveals at a glance just how each dollar of the city's income is expended. It is a good form of graphic display to use for this purpose.

III. FACTS ABOUT THE SCHOOLS AS THEY EXIST

1. Character and extent of present school facilities

Our third main question. Thus far we have shown how to study the educational needs of a city, and how to study the city's capacity to satisfy those needs. We turn now to the question of how these needs are at present being met. What are the facilities, and how are they distributed?

As pointed out above, no new policy can disregard the present and past ideals and practices. Good buildings cannot be discarded, even if they do not fit the needs of the city. Any reorganization of classes or curricula must consider the children who are partly through their courses. Reorganization of a staff cannot be effected in a day. Accordingly, a rough survey of the present facilities is necessary for

the formulation of the first broad lines of any new procedure or policy.

Aspects of the system to be studied. To obtain a fairly clear idea as to what constitute the present school facilities, one should know the number, sizes, and kinds of buildings, and the number of sittings they provide; how these facilities are distributed throughout the city; the types of schools; the provision for special classes; the size and organization of the staff; income and expenditures; and curricula.

Full details about these matters are not what we need at this point. Gathering and studying these details is the problem of the entire survey. At this point we wish to know roughly what are to be the outstanding problems; that is, the essential points of attack. It is a matter of roughly setting our educational needs and our capacity to satisfy those needs over against what we now have.

The first of this information will be made available by our maps. To these we may turn for the number and location of the schools, the different types of schools, the distances children must walk, and the possible use of street cars. The map already presented will suggest the type that should be prepared for this purpose.

Other types of information. The actual facts for the school systems of Alameda, and San José, in California, may be presented here as an illustration of how to get together, in brief space and easily readable form, a rather clear picture of the main features of a school system as it actually exists.[1]

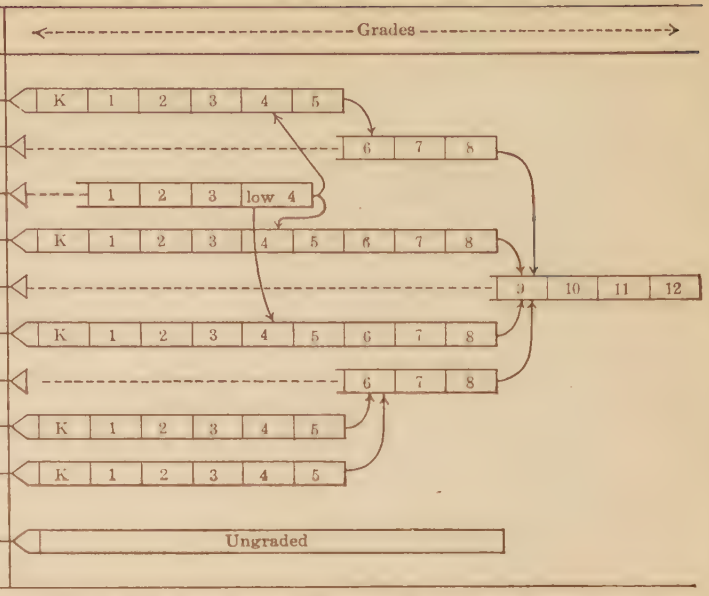
In Table XI can be seen at a glance the number of buildings; the type, size, and ages of the buildings; the size of the teaching staff, and the enrollment; the general social character of the school population; and a description of the cur-

[1] Thanks are due Principal Arthur Heche, of the Mastick School, Alameda, and Superintendent W. L. Bachrodt, of San José, for providing the facts used in this presentation.

Table XI. Showing Certain Important Facts about the School System of San José, California

Name of Bldg.	Date of Erection	Type of Bldg.	Size of Building		Special Rooms								Grades of Work Offered	Enrollment	No. of Teachers	Special Characteristics of the School Population
			Stories	Rooms	Gym.	Lib.	Auditorium	Ungraded	Dom. Sci.	Man. Tr.	Art	Teachers				
Lincoln.....	1880	Wood	2	18	No	No	Yes	No	Yes	Yes	No	Yes	1–8	458	14	
Gardner....	1882	Wood	2	16	No	No	Yes	No	Yes	Yes	No	Yes	1–8	552	15	Italian
Washington	1889	Wood	2	23	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	1–8	902	25	Italian
Horace Mann	1907	Met. lath and plaster	2	24	No	No	Yes	No	Yes	Yes	No	Yes	1–8	811	23	Middle-class American
Lowell.....	1907	Met. lath and plaster	2	24	No	No	Yes	Yes	Yes	Yes	No	Yes	1–8	755	21	High-class American — Few Italian
Grant.....	1907	Met. lath and plaster	2	24	Yes	No	Yes	No	Yes	Yes	No	Yes	1–8	914	24	Italian
Longfellow..	1907	Met. lath and plaster	2	12	No	No	Yes	No	Yes	Yes	Yes	Yes	1–8	343	10	Industrial center
Jefferson....	1918	Stucco	2	17	No	No	Yes	No	Yes	Yes	No	Yes	1–8	458	13	High-class American — Few Italian
Hawthorne..	1918	Stucco	2	14	No	No	Yes	No	Yes	Yes	No	Yes	1–8	475	12	Middle-class American
High School.	1907	Met. lath and plaster	2	96	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9–12	2370	89	Entire city
Vocational High.....	1920	Hollow Tile	1	15	No	No	No	No	No	Yes	No	No				Entire city

Building	No. of Rooms	Enrollment
Lincoln Primary	16	552
Lincoln Grammar	8	230
Everett	4	138
Porter	21	786
High School		
Haight	20	814
Washington	15	524
Mastick	17	640
Longfellow	12	460
Calif. Girls Training Home[1]	1	35
10 Bldgs.	114	4179



[1] A State institution for delinquent girls. The educational work is under the direction of the city school system.

FIG. 3. THE ALAMEDA, CALIFORNIA, SCHOOL SYSTEM

Showing for each building the number of rooms, the enrollment, and the grades of instruction offered. (The arrows point the route over which a child may pass from school to school. Data for year 1921.)

riculum offered at San José. In Figure 3 is shown a clear picture of just what is going on in each of the buildings in Alameda.

From these two collections of data one can see all the essential aspects of the schemes of education which these cities provide. From these it is possible to figure out the high points in the survey. On the matter of school buildings, one can see what is needed by examining the age and character of any building, the size of its staff as compared with enrollment, and its provision or lack of provision for the types of special rooms that ought to be available in a community of the social type described. The adequacy of the instructional staff can be judged by its relation to enrollment figures. The curriculum facts, set over against the social characterization of the schools, furnishes a general basis upon which to judge its fitness. Further, one may see by the arrows in Figure 3 the route over which a child may pass in Alameda in going from the kindergarten to the end of the high-school course.

If to these facts one will add a study of the maps proposed, he will be reasonably well oriented with respect to the essential weaknesses, and therefore with respect to the essential points in the system at which careful constructive study should be directed. It would be easy to expand this discussion, but our purpose here is not to exhaust the subject; rather it is only to discover the main points of attack for the survey.

QUESTIONS FOR CLASS DISCUSSION

1. Why is the point of view of one beginning a school survey much the same as that of a newly appointed superintendent of schools just entering upon his duties?
2. What is meant by school policy, and who is responsible for making it?
3. What social data would be useful to a newly elected superintendent of schools? What of these data would be needed in a general survey of the system?

4. Suppose a city's population were all native-born, but that a relatively large percentage of the people belonged to the class of unskilled laborers. What bearing would this have upon the development of a school program? What would you say if in that city you found algebra and two years of foreign language required of all high-school pupils?
5. What occupational and financial facts about a city would one need: (1) If he were going to ask the community to undertake a large building program? (2) If he were asked to outline the needs of the city for school buildings?
6. How would you determine, for any city: (1) Whether it is heavily taxed for schools? (2) Whether its total tax burden is too heavy? (3) Whether it is carrying as much school debt as it is able to carry?
7. Two cities have the same tax-rates, as based on true wealth. Is it fair to say the two are equally able to support good schools? Suppose that one city has relatively many school children, and the other relatively few; that one has a modern school system and school plant, and the other is far behind in both these items; that one city is paying part of its tax-money for a municipal lighting plant, and the other city makes no investments of this kind; and that one city needs to have a relatively large police force, and the other can get along with a relatively small one. Knowing these facts about the two cities, how would you then interpret the comparison?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Prepare a map of a real or a hypothetical city, showing such items as would be useful in working out the general features of a school policy for the city, and explain how the map would be useful to the surveyor or to the superintendent.
2. From the latest census reports prepare a table or several tables, by which a comparative study of the population-facts necessary in a survey can be made, and interpret the tables.
3. Make similar occupation studies, and show their bearing upon the school policy of the city.
4. Following the plan outlined in this chapter, make a study of a chosen city's capacity to support schools.
5. Describe a city school system with which you are familiar, following the plan proposed above.

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CHAPTER III

THE LEGAL AND ADMINISTRATIVE ORGANIZATION

1. The second step in a survey

Chapter II, a necessary background. In Chapter II we outlined and illustrated a plan for surveying the needs and resources of a city with a view to formulating the broad outlines of a school policy, or as a means of obtaining a general orientation for a school survey. As a result of such a study, the main educational aims and purposes of the city, as well as the city's financial capacity to attain those aims, should stand out clearly. With such a general background and means of orientation we are now in a position to begin a more detailed survey of the school system itself. How and to what extent are the educational aims and purposes, as formulated by the methods illustrated in Chapter II, being attained?

The remaining chapters of this book will be devoted to the presentation of plans for the studies necessary to answer this question. Accordingly we shall deal, first, with the larger and more general aspects of the administrative machinery and processes; second, with the internal problems of administration and management; and, finally, with the efficiency of the supervision and instruction.

The problem of this chapter. In this chapter we shall take the second logical step in a school survey; namely, that which evaluates the legal and administrative organization of the system. It will be our purpose to show how to study these aspects of the organization and, as far as possible, to lay down the essential principles which should guide in the operation or in the reorganization of the system.

I. The Legal Basis of the System

1. How to study the laws controlling school organization

The problem. The legal basis upon which the schools of a city are operated is often one of the most important explanations of their successes or failures. Who holds the authority, and who bears the responsibility, are important questions to which one should have answers early in the work.

To study this aspect of the problem the survey staff will do well to formulate certain definite questions, as follows:

1. Where does authority for conducting the schools originate?
2. To whom, to how large a group, and for how long is this authority delegated?
3. How do those to whom authority is delegated obtain office?
4. What specific powers are granted to these persons?
5. Under what specific limitations must they organize and operate the schools?
6. What authority in turn do they delegate to others?

The method of study. Answers to these questions are in all cases to be found in State constitutions, State laws, city charters, and city ordinances. Our study is first of all, then, a study of these documents. States differ widely in laws relating to such matters. Sometimes authority is granted in general and sometimes in specific form,[1] the result being that even in the same State widely different procedures have been followed by different cities.

Our first step, then, is to analyze the State laws to see how and to whom authority has been granted. Our second step is to evaluate these legal provisions. This latter problem is

[1] Many cities have charters by which they are almost entirely independent of the State. Any California city, for example, may frame a charter and include in it any provision relating to schools that is not inconsistent with the general school law of the State. In many other States this liberty of action also is common.

not so easy. One school board may be composed of three members, and another of seventeen. In one case the State grants to the school board the power to levy the school tax, and in another case this power is given to the city council. In one city the members of the board are elected at large, and in another by wards or precincts. These are typical of the numerous differences that we find to exist. In such cases our answer to the question, "Which is the better law?" can be made only in terms of accepted administrative principles, in terms of results which are obviously due to the working of the law, and in terms of the best practice elsewhere.

Administrative principles needed. As a basis for judging the efficiency of the legal foundation of the school system, we shall lay down a set of guiding principles which have proved their worth not only to the political theorist, but in the practical administration of education as well.

1. The authority over schools rests primarily in the State.[1]
2. The legislature may delegate any authority it pleases to whom it pleases, such persons being responsible to the State and not necessarily to local authority.
3. There must be harmony between the administrative and the financial powers over the schools, so that those who direct the schools may have power to command the necessary support.
4. Boards of education should be left free to determine their own form of organization and largely their business procedure.
5. Each board member should be elected by and should represent all the people of the school district, and not one section or precinct.
6. All board legislation should be based upon the deliberations of the entire board, rather than being referred to standing committees.
7. A board of education possesses deliberative and legislative

[1] This is not only an accepted political principle; it is law or an assumed right of the States, and has been since colonial times, but its implications in practice have often had to be defended in court. See cases cited by Cubberley, in his *Public School Administration*, chap. II.

power, but should delegate executive power to the superintendent on the principle that the functions of deliberation and legislation belong to the representatives of the people, and the execution of the results to its executive officer or officers.

8. A perfect coördination of the many forces involved in the administration of a school system demands that all executive control shall center in one head.
9. Continuity of policy demands that it be impossible to change the entire personnel of the board in less than three to five years.
10. Members should serve essentially without pay.

2. The use of these principles in a survey

These principles have been slowly evolved out of our actual experience in school administration, and, if we find all of these operating in a given city, we can be reasonably sure that it is legally within the power of the present school authorities to remedy any existing weakness in the school machinery. In applying these checks to the legal structure of a city system, however, the surveyor will quickly find that judging an organization in terms of principles is very different from judging it in terms of exact units of measure.

How evidences of infringements of principles may be detected. The limitations within which these principles operate vary in different cases. While it would be difficult to find a court decision contrary to our first two principles, yet, in practice, we find many cities trying to usurp that authority from the State.[1] Such infringements often go almost unnoticed until finally some taxpayer or some city council brings the matter into court. Such breaches of fundamental

[1] New York City is a recent notable illustration. (See Butler: "Should New York City Have a Paid Board of Education?"; in *Educational Review*, vol. XIII, pp. 204–10, September, 1904; also *Buffalo Survey*, p. 13.) The charter of San Francisco is an illustration of a city having obtained from the State very large authority over its schools, and the management of the city's schools has until recently illustrated the abuse of this principle.

principles, however small, are insidious, and ought to be fully exposed by a survey.

Our third principle is not followed in all cases, though the tendency is clearly in the direction of empowering city boards of education (usually within limitations) to determine the amount of tax to be raised for schools.[1]

Our fourth and fifth principles are usually observed in practice, but not so the sixth. Much of the business of our school systems is still transacted largely by committees,[2] and the consequent waste of time, the failure to get the will of all the people expressed, and the tendency of the board to take over many executive duties can easily be ascertained by inquiring from whom principals, janitors, and others take orders; by the failure of principals to recommend the dismissal of poor teachers; and by the general atmosphere of uneasiness that pervades the system.

Our seventh principle is often violated — invariably so in the case of paid boards — and usually so when education is mixed in politics. Evidence of the non-observance of this principle is usually not difficult to find in the business department, in the teaching staff, and in the acts of the superintendent.

Principle eight is totally ignored by the State and charter laws governing the organization of schools in many cities,

[1] See Deffenbaugh, W. S.: *Current Practice in City School Administration*, United States Bureau of Education, Bulletin no. 8, 1917, for facts on this subject. Dr. E. C. Moore, in his *How New York City Administers its Schools*, argues this point very effectively by classifying the interest of education as paramount — with that of the government itself. See also Frasier, George W.: *The Control of City School Finances*. The Bruce Publishing Company, 1922.

[2] See discussions of this point in the following *Survey Reports:* San Francisco, p. 77; Boise, p. 28; Cleveland, volume by Ayers on *School Organization and Administration;* New York City, volume by Moore on *How New York City Administers Its Schools;* Elyria, Ohio, p. 29: Janesville, Wisconsin, p. 100.

and wherever committee management is carried very far there is usually more or less violation of this principle, which produces the symptoms enumerated above.

We find the ninth and tenth principles generally observed to-day in laws and charter provisions.

From this it is clear that some of our principles are so well established that infringement is rare, while others are still under debate in some quarters. The surveyor must be able to discover whether or not these principles are operating, and to recognize the symptoms of inefficiency which their abuse produces in the school system if he wishes to answer the questions raised above. If they are operating the board of education will not be subservient to the will of a city council; it will consist of from five to seven members;[1] it will be elected at large, and for a term long enough so that the entire board cannot be changed short of three to seven years; it will possess power to determine the tax-levy, and power to legislate for the schools; it will not possess executive authority, but will have delegated such authority to its executive officers; it will act as a board always, making use of temporary, but rarely or never of permanent committees; and, finally, it will serve without pay. These are the standards which have been established as the practical expression of the above principles, and in the light of which the surveyor may formulate his answers to the questions raised above.

How effectively does the legal machinery operate? Even

[1] Cubberley, E. P., in his *Public School Administration,* shows in Figure 8 the kind of changes that have taken place in the direction of smaller boards during a period of twenty years. See, also, Deffenbaugh, W. S.: *Current Practice in City School Administration,* United States Bureau of Education, Bulletin no. 8 (1917), for evidence on most of the points in this chapter. See also Munroe, James P.: "Boston School Administration"; in *Educational Review,* vol. 32, p. 98 (June, 1906), for a good illustration of wrong practices.

though the legal machinery may be perfect, there is yet possible a certain kind of inefficiency due to poor methods of procedure. The board may act too slowly, or without proper evidence, or it may try to deal with too many details,[1] may keep inadequate record of its acts,[2] or may disregard public opinion, all of which make for general inefficiency.[3]

II. The Administrative Organization

1. Different aspects of the problem

Responsibility for organization. The plan of organization for a system of schools is usually determined in part by law, in part by the board of education, and in part by the executive head or heads of the school system. For small cities the entire responsibility for administering the school system is usually placed, by state law or by charter, in the hands of the school board, with the assistance of the school superintendent they are permitted by the law to employ.[4] Rarely, however, do such laws define the duties of the superintendent in any detail, these being left to be further clarified by the action of school boards through their power to adopt by-laws. In larger cities this responsibility is not infre-

[1] See *The Portland School Survey*, pp. 16 ff.; and the *Cleveland Survey*, volume on *School Organization and Administration*, for good illustrations of too detailed board action.

[2] See *The Boise School Survey*, p. 35.

[3] The duties of boards of education are enumerated and discussed in the following *Survey Reports: Boise*, p. 30; *San Francisco*, p. 83; *Memphis*, part 1, p. 37; *Portland*, p. 31; *Salt Lake City*, p. 23; *Cleveland*, volume on *School Organization and Administration*.

[4] For a summary of State laws bearing on this point see Deffenbaugh, W. S.: *School Administration in Smaller Cities*, United States Bureau of Education, Bulletins no. 44 (1915); no. 8 (1917); no. 2 (1922). Also see Morrison, John Cayce: *The Legal Status of the City Superintendent*. Baltimore, Warwick & York, 1922.

quently divided so that there are two or sometimes many executive heads to the school system. At the outset, therefore, it is important to locate the responsibility for the placement of this authority, since the entire detail of the school machinery is determined by the character of this key position in the system.

It is needless to establish school aims or to develop a school policy, as suggested in our last chapter, unless we have an organization that is competent to carry those aims into execution. School machinery can exist for but one purpose, namely, the education of children. Raising taxes, erecting buildings, conserving funds, purchasing supplies — all are highly important as means, but they cannot be considered as ends. Accordingly it seems almost trite to say that these are subordinate functions, to be performed in terms of educational needs, and that these subordinate relationships must be expressed in the plan of organization.

Organization for administrative and for advisory functions. There are two kinds or divisions of school organization necessary in the management of a large school system. The purpose of one is to determine lines and foci of authority in the administration or execution of school policies. The purpose of the other is to gather and to place at the disposal of executive authorities the information and advice necessary to rational and economical educational procedure. The one is concerned mainly with the problem of formulating, the other with that of executing policies. In political, military, and industrial circles these two types are referred to as line organization and staff organization, respectively.

The point to emphasize here is the two distinct functions of informing (staff), and executing (line). There must be line organization for any system. In small systems the staff functions may be performed by line officers, but in time a system may reach a size, and so a degree of com-

plexity, that will warrant a specialization of organization for staff functions.

2. Right principles the first measure of efficiency in organization

First principle, unity. The efficiency of any organization is best measured by the work it accomplishes. After long study and experience with different plans of organization, however, it is possible to deduce certain working principles in terms of which an intelligent judgment can be formed. School machinery, like business, industrial, and political machinery in this country, has grown up much more in terms of constantly varying circumstances than in terms of a preconceived theory of organization,[1] and with these types of organization it has much in common.[2]

If any one such principle stands out clearly, it is that which has already been suggested, namely, unity. This is only possible when an organization possesses a single head. There is a business side to education, but its measure of success is not money saved; rather it is money wisely spent for education. The single head of a school system must, therefore, be the one coördinator of all the many forces involved. He must be a judge of what education to buy (must finally determine the educational policy), and must have freedom to operate in terms of his judgment.

Second principle: authority delegated in terms of functions. In organizing a staff for the management of any enterprise whatever the character of the function to be performed must be the basis for the delegation of authority. It must be admitted at the outset that this principle has not

[1] See Figure 6 in Cubberley's *Public School Administration* for an excellent schematic representation of this growth.

[2] See Bobbitt's parallel statements of principles of administration common to education and business, in *The San Francisco Survey Report*, p. 83.

been satisfactorily applied in education. One looks through educational literature almost in vain for a clear statement of the functions of any school officer, from the superintendent down to the janitor. The frequent overlapping of authority between officers, with its attendant friction, is evidence of two weaknesses:[1] one, that assignments were not made in terms of clearly-defined functions; the other, that the officers in question are more conscious of their authority than of the proper duties of their offices. The latter is an inevitable consequent of the former.

It does not follow from this that a principalship is exactly the same in all cases, or that assistant superintendents must function the same in all cities. It means that the duties of the many officers of a system must dovetail into each other without clash — that lines of authority, lines of responsibility, shall represent true functional relationships. The special supervisor of music and the school principal have a common educational aim. All too frequently the teacher receives orders from each of these officers which show that the plans of the two are at variance, and the teacher not infrequently bears the brunt of such lack of harmony.

Third principle: lines of authority should be as direct as possible. When the duties of one officer are intimately associated with, but subordinate to, the duties of another, then instructions and orders should pass directly from the superior to the subordinate officer, and not through a third

[1] In view of the vast sums of money that are being spent annually for the various lines of public education, in view of the wide variety of items for which this money is spent, in view of the present chaos in school financial accounting and business management, and in view of our need for a clarification of the functions of all administrative officers, it is not unreasonable to expect that in the near future we shall have a common administrative code enforcing a common as well as a rational administrative organization and method for all state schools, higher as well as elementary. This will place definitely the main responsibilities in an organization and leave detailed adjustments in proper hands.

officer whose work in a general way may be connected with that of the two officers in question. A janitor should take orders directly from the principal, without the necessity of first referring the matter to the superintendent of buildings. Only in important matters should a school principal have to go through the superintendent's office to the health director, the attendance department, the building inspector, or the purchasing agent.

To each of these officers has been delegated certain authority which corresponds with certain school functions. These functions establish immediate rather than roundabout relationships or avenues of intercourse between each of these officers and a large number of other officers. Just what main lines of business can be transacted through these avenues direct, and what must go by a more extended route through the superintendent's office, or even to the board of education, or to a vote of the people, should not be left to mere chance or whim. The proper routes can and should be determined. That is precisely what an organization is for. Aside from details it is only an occasional item that should be left to the discretion of the officers concerned.

Fourth principle: coördination through staff advice. When the work of managing the schools of a city has been divided up and assigned to officers in terms of the various functions to be performed, or, in other words, along lines of natural cleavage, that means, figuratively speaking, that the muscles of the finger have been assigned the duty of controlling the finger, but that they have no authority in the control of the elbow. This is an important provision, as this crude analogy suggests. Yet if the authority delegated to the many necessary officers is not intelligently coördinated, there is a fair certainty that inefficiency if not failure will appear in the actual operation of the machinery.

As explained above, the two words, line and staff, have

been used to refer to two distinct functions in organization. Line stands for action and authority. Staff stands for investigation, knowledge, advice. Line organization may or may not be based on the functional division of labor above suggested. If staff advice is not provided for in a system, however, line organization will not only call for exact and detailed placement of authority, but it will emphasize the rights to exercise that authority. Carried to its extreme in education the superintendent becomes an autocrat who orders rather than directs the management of the schools. He "demands results," he "puts it up to" his subordinates, his subordinates "pass the buck" on down the line, and delegated rather than rationalized authority becomes the means for the coördination of parts and functions in such a system.

Staff organization does not replace this line order, but it modifies authority by intelligence and advice. In such a plan the superintendent is supported by an organized group of workers who possess no executive authority in the management of the schools. It is the business of this group, each an expert in a separate field, to furnish the superintendent with information and advice. They may study buildings, finance, curriculum, staff, or instruction, the end always being information to be used by line officers in the management of the schools.

In the early history of school organization there was no special provision for staff advice, nor is there to-day in any except our larger systems.[1] Obviously the push-cart merchant has time to get his own information. He is line and

[1] This was equally true in business organization a decade ago. If the head of a business wanted advice he called in an engineer, a lawyer, or an accountant, and paid him a fee for his services. Now these functions are provided for in the regular organization, and have been extended to include large research laboratories and even schools for employees. See Chapter XVII for valuable references.

staff in one. So must it be in the small school system, so far as any elaborate and costly organization is concerned. This does not mean, however, that the service is not needed. It is needed, however large or small the system may be. The kind of organization necessary for providing for this function will obviously vary, therefore, with the size and complexity of the system and, to some extent, with the character of the line or administrative organization.

In large cities organization for staff service has been worked out by the establishment of bureaus of research.[1] These bureaus have a wide variety of functions at the present time, but they are gradually coming to render real staff service in the system. Some began with a consulting psychologist and have expanded little beyond the functions suggested by that title. Others were at the outset little more than statistical clerkships. Gradually, however, as will be shown in a later chapter, numerous lines of investigation have been opened, with the result that administrative organization is being supplemented by an organization for study and research. More recently this special service is being supplemented by another type of machinery, namely, the committee from the teaching staff.

Fifth principle: every line officer should render some staff service. This principle has not been deduced entirely from our experience, but is proposed for three reasons:

First, in a large school system the superintendent, as the chief executive, is far removed from the atmosphere of the classroom where all his policies must finally issue. The result is that, without competent staff assistance, he is apt to formulate his policies with ideal rather than real classrooms in mind. Even with well-organized staff service it is doubtful whether he is fully informed until he knows just

[1] A wide variety of titles for these bureaus have been used. See Chapter XVII.

how all his subordinate line officers, including his teachers, are likely to react to the policies he is formulating. In other words, some of the best staff information a superintendent can have is the frank reactions of those who are to execute his orders.

Second, since teachers are working with human material, their procedure cannot be as fully prescribed as it could be if they were working with steel or bricks. Their own individuality is constantly drawn upon by the varying moods of the little people whom they teach. At every point they must make decisions in the light of new circumstances, and in this small way they are their own staff officers, doing line duty in the light of information which they themselves acquire. Thus, by the very nature of their work, they are not only equipped to give good staff service, but they are properly entitled to have their own experience understood by those whose orders they are executing.

Third, in business, and notably in navy and railroad organization, it has been found by practice that the best results are obtained by a certain amount of shifting of personnel from line to staff and staff to line. When a staff officer has had to do line duty for a while, when he has taken and executed orders and borne the responsibility of action for a while, he goes back to staff work with more intimate insight into the real ends which his studies are expected to serve. Similarly, when a line officer has done some small staff duty for a while he will see that the orders he has been executing, in a mechanical way, perhaps, have back of them a sound understanding of a larger whole of which his own work was but a small part. By such experience each has gained a new respect, not only for the other's work, but for his own as well.

The full application of this principle in school organization would go far in providing the professional stimulus, the

training in service, and the coördination of effort which we have long sought. The need has been for a plan of organization for which no amount of administrative effort at the top of the system, no amount of lecturing in teachers' meetings, and no amount of travel or summer-school training can be substituted. As the American teacher has gradually become better trained, it is inevitable that she should desire larger freedom in the exercise of her functions. In recognizing this right of the trained teacher, we must not overlook the fact that our growing cities have tended to increase the distance between the classroom teacher and the superintendent, and so to increase the difficulty with which such freedom can be provided without organized effort.

Practical applications of this principle. In what ways should the surveyor expect to find our fifth principle operating? The answer is, to a considerable extent in the actual coöperative relationships that can be seen to exist between administrative, research, supervisory, and teaching officers as they are carrying out their several functions. This is not all, however. It is not entirely a matter of morale or the spirit of execution alone. It is also, because of its importance, a problem in organization, because, if left to itself, it usually will not develop in practice.

Numerous cities have recently attempted to provide for such an organization, and already some good results are being obtained. Such organizations have usually taken the form of committees, elected to represent the teachers, principals, and special supervisors of the system. Their powers have been deliberative and advisory only, their purpose being to keep before the school board and chief executives the problems, needs, and aspirations of the force of workers who are most vitally in touch with classroom work, where all policies finally issue.

The efficiency of this feature of school organization de-

pends largely upon whether or not the committee or council, as it may be called, is really representative of all classes, whether it has full freedom to deliberate, and whether it has full right to lay its findings before the superintendent and school board. If the constitution and by-laws of the council embody these rights (they also should be regarded as duties), the organization, so far as experience to date guides us, may be considered effective.[1]

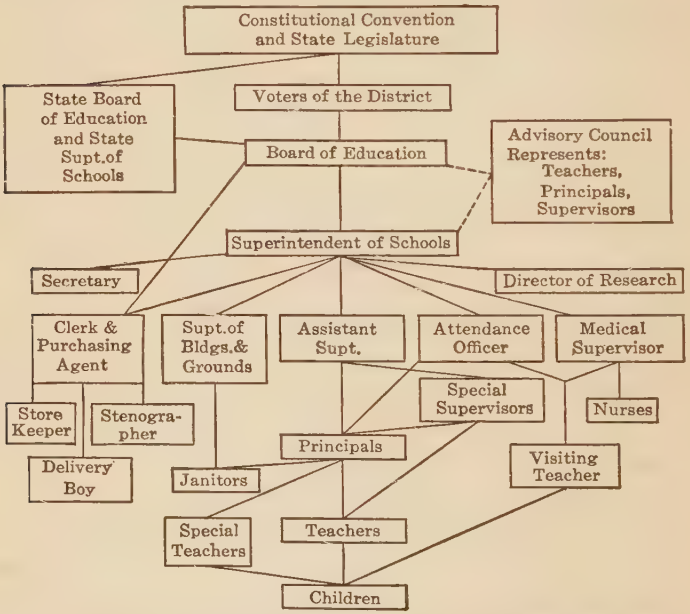

FIG. 4. PLAN OF LEGAL AND ADMINISTRATIVE ORGANIZATION FOR SCHOOL SYSTEM IN CITY OF APPROXIMATELY 50,000 POPULATION

[1] A study of the present status of teacher participation is available in an article by the writer. See "Teacher Participation in Public School Administration"; in *American School Board Journal*, vol. 29, p. 32. (October, 1921.) See also the pertinent chapters in Almack and Lang's *Teachers' Problems*. Houghton Mifflin Company, 1924.

3. Our legal and administrative principles illustrated

Proposed plan of organization. The principles which we have laid down for measuring the efficiency of the legal and administrative organization are shown schematically in Figure 4, as they would exist in a city of approximately 50,000 inhabitants. In this plan all important lines of authority are traced. The constitution and laws provide for a State board of education and a State superintendent of schools, by whom the general educational policy of the State is formulated. The laws also provide that the people shall elect their own representatives to carry this policy into effect, in any given community. This representative local board interprets the State policy for its city, and administers the schools through its executive head, the superintendent of schools. The organization of the administrative staff is largely in the hands of the superintendent, and is worked out in terms of the functions to be performed. Staff service is provided for in the director of research and in the advisory council, and line service through the other avenues indicated in the diagram.

If we add to the diagram the requirements that the board shall be composed of five members, elected at large, and one each year for five-year terms; that it shall have power, within limitations, to levy the school tax; and that it shall serve without pay; then it is believed that the plan embodies in substantial working form the fifteen principles we have laid down in this chapter for measuring the efficiency of the legal and administrative machinery of a school system.

Note: In a small school system the clerk and purchasing agent would need no assistance; there would be little need for the attendance officer and assistant superintendent; and the superintendent of buildings and grounds, the director of research, and the medical supervisor would be replaced by a head janitor, an added clerk, and a nurse respectively. The duties of these officers would in part move up to the superintendent's office, and in part down to principals and teachers. On the other hand a larger system would call for an expansion and greater differentiation and specialization of the plan here presented. As illustration of expansions, see Figs. 12 and 13.

Successful operation the final test. As already suggested, the final test of any plan is how it works. In surveying the administrative machinery of a school system, it is well to distinguish clearly between the machine itself, as above discussed, and the operation of the machine. A given school organization might embody all the principles we have laid down above and still be unsatisfactory because it is not intelligently operated. The functions of a superintendent and of his principal subordinates are never minutely defined in terms of specific acts in a good school system, nor is it desirable that they should be. Unless a man is to become a mere cog in a wheel, there must be ample room for him to work out ideas of his own.

This does not mean that there is not a fairly definite line of demarcation between the duties of the superintendent and those either of his board or his subordinates. Just where he places this line in the execution of his duties is a real test of his efficiency, and where this line is finally placed between the numerous officers in control is an important measure of the efficiency of the entire school machinery.

The superintendent and the board. According to our principles of organization, it is the function of the board to legislate, and of the superintendent to execute the board's enactments. This suggests a very close relationship of functions. Legislation must be in terms of needs, and, to be used as such a basis, needs have to be carefully evaluated and classified. To classify the needs of a school system with respect to the future as well as the present is to formulate the policy of the system. No legislative body can be in as close touch with needs as can the one who executes the laws. Hence in practice, business and political as well as educational, the executive is responsible for outlining or pointing the way in policy-forming. It is the superintendent's business to present to the board a carefully analyzed

account of the schools' needs, and it is the business of the board to adopt a method of procedure for meeting those needs.

Our test, then, is: Does the superintendent do the former, and leave the board to do the latter? Undue pressure by the superintendent to force the board to follow his proposed classification of needs (policy) will tend to take from the direct representatives of the people their legitimate rights and duties. On the other hand, to fail to make a clear analysis of the school's needs, or to stand aloof from any discussion or elucidation of the needs as presented, is to fail to function with the constructive insight and energy due a board from its chief executive.

From the superintendent's annual report, and especially from the minutes of board meetings, where proceedings have been properly recorded, it is possible to examine the kind of service the superintendent has been rendering along these lines. The kinds of investigations he has carried on directly, or through his bureau of research, will furnish further evidence. A superintendent entering a new position should study such sources, together with the correspondence files of his predecessor, in order to know whether he is to have the support of precedent for the kind of procedure here suggested, or whether he is first going to have to overcome wrong precedents.

The superintendent and his staff. As executive head of the school system the superintendent has quite as important relationships with his teachers and supervisors as he has with his board. The intimacy of these relationships is of necessity determined by the size of the system. The superintendent's interpretation of these relationships, as it may be seen in practice, is a fair test of this part of the school machinery.

Assuming that the principles of "unity," "authority in

terms of functions," "lines of authority direct," "coördination by staff service," and "all line officers must render some staff service" have been fully applied in the organization of his subordinates, the surveyor's query is: How are these principles being interpreted in practice? He will look for evidence or lack of evidence of these principles in the school system. How is this evidence to be detected?

There is not likely to be unity in administration, even when there may be unity in the organization, unless all officers are working toward the same ends. The superintendent must see to it that these common ends, namely, the policy which he has assisted the board in formulating, are fully understood and intelligently carried out by his staff. If he does this by ordering one part carried out by this officer and another by that, without familiarizing each one with the character of the whole project, then his staff service is not being utilized and there is almost sure to be a lack of harmony because of a lack of understanding. That is, the superintendent, as executive, is responsible not only for formulating plans for getting work done, but for getting his subordinates to understand those plans.

We may ask, then, how does the superintendent do this teaching? By direct contact with teachers and supervisors, if the system is small; through conferences and committees, if the system is somewhat larger; through a small number of his principal subordinates, through circulars, bulletins of information, reports, and addresses if it be a very large system. It is easily possible to find these devices if they are being utilized, for then every one is provided with information instead of with orders or a list of rules.

Again, good administration will not result from good organization unless the combined intelligence and initiative of all are brought to bear in perfecting the details of policies and in carrying them out. A superintendent may propose

to his board that it is time to expand the curricula of the city's schools. He will explain the needs for such revision, set forth the essential changes in organization, staff, and buildings, and the increases in cost necessary to the new plan. After the board has adopted his proposed policy, he does not formulate the full details of the plan and then announce it by sending out new courses of study, and by notifying certain teachers and supervisors to take up new duties, but through proper channels he calls all concerned together to work out these details. Here each teacher or supervisor has a chance to help in the project. Originality is at a premium. When the plans are finally finished, they may be little different from what the superintendent and his chief assistants might have worked out, but they are now the plans, not of the central authority alone, but of those who are to put them into operation. The difference here is not in machinery, but in how the machinery is used.

These are but illustrations of what the surveyor is to look for in his effort to test the administrative organization by testing how it operates. From this it is clear that a school system may as often be poor because of weak or inefficient operators as because of weak organization.

QUESTIONS FOR CLASS DISCUSSION

1. What is meant by the terms *school organization* and *school administration?*
2. What administrative duties have you known school boards to exercise?
3. Would you consider it possible and advisable to draw up a complete administrative code for the schools of a State? What should the code include?
4. Distinguish between deliberative and executive functions, and give illustrations from a city school system.
5. Should a superintendent of schools have a part in legislation for the schools?
6. Why is it best to have unpaid school boards?
7. Why should members of a school board be elected at large, rather than from certain precincts or wards in a city?
8. Illustrate, from a school system with which you are familiar, just how

each of the five principles of organization as set forth in section 2 of this chapter are operating or being violated.

9. Give illustrations of staff advice needed by a superintendent who is soon to undertake a revision of his course of study for the high school.
10. Suggest types of service that might properly be performed by an advisory council, by a director of research, and by a visiting teacher.
11. The *Philadelphia Survey Report* (Vol. II) recommends the abolishment of the *board of visitors*, and declares that the board of education should be elected by the people instead of by the judiciary because the board, having power to levy and collect taxes for school support, ought to be directly responsible to the people. Discuss the reasoning presented in the *Report*.

PROBLEMS FOR INVESTIGATION AND REPORT

1. From a copy of your state constitution and state school code, prepare answers to the six questions presented on page 48, above.
2. Examine a collection of city charters to see what control over the schools is determined by the city.
3. Do the officers who administer the schools of your city have power to determine the amount of money that is spent for education? Explain fully the law placing authority for each of these two functions. What survey reports comment on this?
4. Draw up a scheme similar to Figure 4, showing the plan of organization of schools in some selected city. Criticize the plan.
5. Apply the five administrative principles presented in this chapter to the study of a selected school system.
6. Examine the St. Louis plan of organization, as explained in the *Survey Report* for that city, in the light of these principles.
7. What criticisms can you make of the Philadelphia plan of organization as illustrated at the beginning of Vol. II of the survey report?

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CHAPTER IV

FINANCE AND BUSINESS MANAGEMENT

1. The measure of financial efficiency

The main issues. In attempting to measure a school system with respect to the efficiency of its financial management, or in outlining a financial policy for the future, we need first to set forth the main problems that are involved. These may be stated in the form of questions, as follows:

1. Are the sources of revenue satisfactory?
2. Is the legal and administrative machinery for obtaining revenue satisfactory?
3. Does the city spend as much for education as it should?
4. Is the present financial status of the schools satisfactory?
5. Does the city spend its school money wisely?
6. Is the business of the schools being handled satisfactorily?

These questions will suggest the large groups of facts with which an adequate inquiry must deal, and at the same time will indicate the general outline of this chapter.

Our need of standards. Our very first question is: How may we measure the efficiency of the city's schools in these several respects? It is one thing to say the schools must be adequately provided for in these ways, but quite another thing to show the degree to which such provision is being made. In this discussion our lack of satisfactory standards will be obvious enough. Yet it is believed that even at the present time we are able to distinguish good from bad practice, and, at many points, to make clear approximately how good or how bad the practice is.

It must be remembered that the standards for an adequate financing of schools, as well as other public enterprises, have

been a development. The question of how much should be spent for schools would certainly have been answered very differently at the end of each quarter-century in our history. Our whole social order is in process of evolution, and the particular part to be played by education is bound to vary as time passes. With the passing of time, however, and with the changing conception of the function of the State in education, there has gradually grown up a set of principles which are coming more and more to direct legislation touching financial practice.

Beyond the wise use of the principles that have been worked out we are slowly perfecting a terminology by which we are able to describe the practice of a given city so that it can be judged, not only in the light of the principles in question, but also in the light of what other cities are doing. We may think of this ability to make such exact comparisons between cities as a very important step in the development of thoroughly objective standards.

Units of measure. As illustrations of this new terminology we may refer to the wide use made in the recent literature on public school finance of such expressions as: "per capita cost," "cost per pupil in average daily attendance," "cost per $1000 of real wealth," "cost per census child," "amount of real wealth per each $1.00 raised for support of schools," "per cubic foot cost for heating," and "per student hour cost of instruction," etc. This terminology does not tell us how much should be spent for education, but it gives us terms with which to define the amount that is spent, and it is useful, therefore, in that it furnishes a definite basis of comparison between schools or cities.

To determine how much a city should spend we must first use, as far as possible, any general guiding principles that may be available, but beyond that we have only the practice of other cities against which to measure the expenditures of

a given city.[1] The value of these units of measure, then, is that they tend to eliminate at least some of the errors that are usually involved in any such comparisons. That they do not do this fully is well understood.

2. The sources of school revenue

Who pays for the schools? The division of the burden of cost between the State and the local community is a matter of some concern to every city. From early times we have advocated a liberal participation by the State in both the support and control of education, but the fact is, with the recent increase in the cost of State government, there has been a gradual shifting of the burden of cost for schools from the State to the local school district.

In order to say whether or not a city is doing its duty by its schools we need to know exactly where the responsibility for support rests. If by law it all rests upon the city, or if it all rests upon the county, or upon the State, then the matter of sources of revenue would not enter as a survey problem. Since, as a usual practice, there is a division of responsibility the question does enter, and for the following reasons. The purpose of a State school tax, with its system of apportionment, is to equalize somewhat the burden of cost. Some communities will pay out more on such a tax than they receive in return, and some less. As a usual thing the amount of wealth per capita varies directly with the density of the population, which means that cities usually suffer some loss

[1] After all, no social need is ever exactly definable. The algebraic sum of the wants of a people cannot be determined, except by their votes for or against a proposed measure. People in America have usually been able to pay for as much education as they think they need. We are really more in need of a means of getting people to understand their proper need for schools than we are of a means of measuring their capacities to support schools, much as we need the latter. See: Sears, Jesse B. and Cubberley, Ellwood P.: *Costs for Education in California*. Chaps. III, IV, VII. New York, The Macmillan Company, 1924.

from a State school tax while rural sections usually profit by it. When a given city receives forty per cent of its school revenues from State and county taxes, as was true of Boise, Idaho, in 1916, it is evident that the figure representing the total outlay for schools is less than one hundred per cent of the school money actually raised by tax on Boise property.

On the face of such evidence, the State tax as an obligation on the city is in no sense to be criticized as bad policy. Equality of sacrifice is the aim of any good tax system. Since, however, the loss to cities from this cause varies greatly over the country, it should be taken account of in any comparative study of the receipts and expenditures of cities. Furthermore, a city school survey report must often concern itself with situations which the city itself has not the power to remedy.

Dependability of sources. A second inquiry about sources of revenue should have to do with the dependability of the various sources. For this purpose the sources should be clearly stated, and their relative contributions through a series of years studied. Data for such a study may usually be obtained from the annual reports of the city superintendent, from the business office, from the annual reports of the United States Commissioner of Education, and from the United States Census Bureau reports on *Financial Statistics of Cities*. Table XII illustrates how such data may be compiled.

To interpret these figures, one should have in mind the relative rate of increase in the income from each of the sources. For this a second table, expressing each of these sums in terms of percentage of the total, would make it possible to see what of the sources are increasing and what are decreasing in value. A fund that tends to increase with the increase of the needs of the schools, as shown by increase

TABLE XII. SOURCES AND AMOUNTS OF SCHOOL REVENUE FOR SAN FRANCISCO, 1910 TO 1916, SHOWING SOURCES AND AMOUNTS RECEIVED BY YEARS [1]

YEAR	REVENUE RECEIPTS				NON-REVENUE RECEIPTS			TOTAL REVENUE	TOTAL NON-REVENUE	GRAND TOTAL
	State funds	Local taxes	Rents	Other sources (interest)	Sale of school bonds	Property sales, ins. adjustments	Other non-revenue			
1910	$615,536	$1,266,929	$50,322	$ 9,170	$ 961,470	$300	$456	$1,941,957	$ 962,226	$2,904,183
1911	737,038	1,208,492	50,888	20,900	1,125,828	553	693	2,017,318	1,127,074	3,144,392
1912	586,215	1,384,933	52,854	5,686	714,688	100	590	2,029,688	715,378	2,745,066
1913	670,762	1,533,125	54,222	4,593	607,218	568	550	2,262,702	608,336	2,871,038
1914	694,431	1,686,712	97,531	9,520	852,121	173	711	2,488,194	853,005	3,341,199
1915	662,412	1,781,447	97,441	260	1,500	164	509	2,541,560	2,173	2,543,733
1916	718,456	1,933,507	98,143	73	8,300		646	2,750,179	8,946	2,759,125

[1] Compiled from Tables 58 and 59 of *The Public School System of San Francisco, California*. United States Bureau of Education, Bulletin no. 46, 1917.

in average daily attendance or teachers employed, may be considered a satisfactory source so far as productiveness is concerned. Thus measured, for instance, San Francisco's income from State tax was a dependable source of revenue. The decrease in income from bonds is also a healthful indication.

3. The legal provisions and machinery for obtaining income

Who determines the amount of income? Our second question is: Is the power to raise revenue properly placed? In some cities this power belongs to the city council, in others to the board of education. The merits and defects of these plans cannot be argued here, but it is generally conceded that the power to levy and collect taxes for the support of schools should be independent of that which directs the general finances of the city.[1]

While State and county taxes must be administered by State and county officers, experience indicates that the city board of education should have power to fix the local tax-levy (limited only by a certain maximum rate), to determine the tuition charge for non-resident students, and to originate and present for vote all proposals for the use of bonds in financing the schools.

As to whether or not the board has these powers may be ascertained by reference to the State laws and the city charter, in which are defined the powers and duties of the board of education. It must be kept in mind that a board is not to be criticized for poor financing unless it is legally responsible. A careful study of the legal machinery for rais-

[1] See Elliott, E. C.: *Some Fiscal Aspects of Education;* Bard, Harry E.: *The City School District;* Cubberley, E. P.: *Public School Administration,* chap. xxv; Frasier, Geo. W.: *The Control of City School Finance* (Milwaukee, Bruce Publishing Company, 1922); and McGaughy, J. R.: *The Fiscal Administration of City School Systems.* New York, The Macmillan Company, 1924, for comments on the two plans.

ing and administering school revenue should be made, therefore, in the light of the above principles.[1]

Limitations of authority. It is not only a question of who possesses power to levy the school tax, but also within what limits the tax must be levied. Is the limit high enough and broad enough to provide reasonable freedom for the board of education? Sometimes the school tax limitation does not represent all the limitation under which the board must operate as, for instance, when there is in addition a general tax limitation that is effective over and above all special tax limitations. Furthermore, the legal limitation is usually drawn with respect to a certain assessment rate. If, since the limitation was established, the assessment rate has been lowered, or if it is badly applied, then a source of weakness in the revenue system is established.

Are the revenue laws being administered satisfactorily? Our next step is to determine how effectively the revenue machinery is operating. Not only a weak organization but also a weak administration may account for poor results. Our first question, what is the machinery, must be followed, therefore, by an inquiry into the way in which the laws are being executed. A satisfactory answer to this can only be given after we have determined whether or not the schools are being well supported. If the sources of income are satisfactory, and the schools are still without adequate funds, then we may look, either for an ineffective operation of revenue laws or for poor financial management as the explanation. If the schools are well financed, then we should look just as sharply for any weak points in the administration of the revenue laws to see that their operation promises

[1] In regard to these functions the actual status of city boards of education, in 1917, is clearly set forth by W. S. Deffenbaugh, in *Current Practice in City School Administration*, United States Bureau of Education, Bulletin no. 8, 1917. Also see Morrison, J. C.: *Legal Status of the City Superintendent.*

stability in sources and regularity of income for the future.

It is true that we are dealing here with State and not with local laws, but their operation is of great concern to the local community. Since change in such laws comes only when local communities complain of their weakness, it is the business of a survey to examine them thoroughly. Every experienced city superintendent knows that no far-sighted policy can be written without regard to these matters.

4. Does the city spend enough on schools?

Bases for determining sufficiency of support. One of the most perplexing questions a survey has to answer is: What portion of a city's income and, in all, how much money should the city spend on schools? School finance is but a part of public finance in general, and the school budget is but a chapter of the general city budget even though it may be legally independent of the city council. We are asked to define the importance of this as compared with the importance of other items and, finally, to say whether its status, when so established, is satisfactory.

One has only to think of education along with police, parks, streets, fire and health protection, and courts and government to realize that there must be a very wide difference of opinion as to the relative worth of education. Beyond certain variations, due to differences in need for police, fire and health protection, and for maintenance of public streets, buildings, and parks, it would seem that *consensus of opinion* is the only possible basis in a democracy for determining what portion of the city's budget should go to education. The revenue laws themselves are but an expression of public opinion. A comparative study of the practices of cities of the same class in population and in the above respects should therefore be made to answer this part of our question.

An answer to the second part of our question, how much should a city spend on its schools, has not infrequently been based upon the amount of taxable wealth in the city.[1] Within certain limits "ability to pay" must be the ultimate determining factor. The extent to which a city taxes its wealth for schools is a fair measure of that city's interest in education, but not necessarily of its needs. It is doubtful whether there is an American city that is unable, with the help of State and county or other available funds, to provide reasonably adequate school facilities for all its children. Accordingly our first concern is, what are the educational needs of the city? Once these have been determined, we are then able to ascertain the extent to which the funds available are adequate. If the funds are not fully adequate, we must then look to the city's resources to see whether school revenues cannot be increased.

In laying down the principle that the "educational needs," and not the "taxable wealth" or "capacity to pay," of a city should be the chief basis for determining the amount to be spent on schools, the surveyor must remember that the functions of the school vary all the way from the necessary processes of learning to read and write to the desirable but not essential processes of blacksmithing and folk dancing. No taxpayer would be unwilling to accept the former, but many would not accept the latter as fundamental needs in a tax-supported school system. What constitutes adequate support, therefore, involves the question of what are the proper functions to be included in the schools of a given city. The borderline between the "essential" and the "merely desirable" is the point of difficulty.

Our conclusion should be, therefore, that for activities that are accepted as essential (as determined by state law and public opinion) our basis should be "school needs."

[1] See Table X, above, for the fallacy of such reasoning.

For activities beyond the essentials, to which we may refer as "desirable though not essential," our basis should undoubtedly be "capacity to pay."

The measure of a city's capacity to pay. Since our only means of measuring a city's capacity to pay is by comparing it with other cities, and since we are to work in terms of "taxable wealth" and "school needs," we should first decide how best these comparisons may be made. What we need is a unit of measure, or a terminology, which will have as nearly as possible the same significance for all cities.

1. *The total wealth* of one city is rarely or never comparable with that of another city for our purpose, since cities are unlike in so very many respects.

2. *Per capita wealth* is a better basis, since it has reference to the number of people who produce, who control, and who use the wealth. But if twenty per cent of one city, and thirty-five per cent of another are composed of young and old dependents, then the drain upon the wealth of the second city is greater than that of the first, and so they are not fully comparable. Again, if the wealth of one city is on the increase while that of the other is on the decrease, or if in one it is stable and in the other fluctuating, then per capita wealth would have a somewhat different meaning in the two cities. In the use of this unit, therefore, care must be exercised if misleading comparisons are not to be made.

3. *The amount of tax raised on each thousand dollars of true wealth* is a useful basis, because the amount of money a city possesses is a fairly good index to its power to produce income and so to satisfy its needs. However, the limitations of the "wealth per capita" basis apply with almost equal force here.

4. *The amount of wealth back of each dollar raised by tax* is different from No. 3 only in the character of the appeal it makes to the public. It is possible that the average tax-

payer may react somewhat more favorably to a statement that tells how much wealth his city possesses than he would to a statement that tells how much he has to pay out in taxes.

5. *Income basis.* If accurate data on incomes could be obtained, as, for instance, complete statistical returns on income tax receipts, it is believed that a much more satisfactory basis would then be available. It is at present not possible to get such data, though it will doubtless be available soon.

None of these units have reference to the city's needs for schools. They are merely a means of defining the amount of wealth or income that is available for taxation for school support. One might use *wealth behind each child to be educated*, or *number of families*, or *number of voters*, or *number of male residents between the ages of twenty and fifty years* — each with some justification. Cities can be compared on any of these bases, but if twenty cities were ranked in terms of each of the units of wealth here suggested they would certainly take different rank in the different groups.

The merits of each of these units cannot be examined at length here. From what has been said it is clear that the surveyor must select his basis of measure with care, having in mind that he is comparing two or more cities in respect to the "amount of wealth possessed," "the burden that that wealth has to bear," and "the ability to increase that wealth." Experience, as well as careful reasoning, has shown that tax per $100, or amount of wealth per $1.00 of tax raised, is the most trustworthy basis. Tables IX and XIII give illustration of how to assemble such data.

The measure of a city's educational needs. How to define the educational needs of a city is an equally difficult task when it is our purpose to compare the needs of one city with those of another. In Chapter II we explained how these

Table XIII. Amount of Real Wealth back of Each Dollar Spent for the Maintenance of Schools

City	Amount
1. Columbus, South Carolina	$723
2. Shreveport, Louisiana	548
3. Wilmington, North Carolina	471
4. Charleston, West Virginia	343
5. Portsmouth, Virginia	297
6. Newport, Kentucky	222
7. Austin, Texas	212
8. Knoxville, Tennessee	212
9. Tulsa, Oklahoma	161
10. Ogden, Utah	159

needs may be stated. Our object there was to find out what kind of education and how extensive a plan should be provided. Here we are concerned with how much a city should spend in carrying out the plan. Since our only means of measuring is by comparison, our first need is to take cities that are comparable. To be comparable they should be similarly located, reasonably equal in size, composition, and rate of growth of population; as well as approximately equal from the standpoint of literacy and occupations. If in these respects they are roughly similar, then our next step is to find a way to state the amount to be spent, so that a unit of expenditure will have reference to a given amount of need for education.

Once we have decided upon the kind and the extent of the education needed, then satisfactory terms of expression for the amount of need would seem to be the number of children to be taught. The amount per pupil taught thus becomes our unit of measure. It is not possible here to examine at length the merits of the numerous possible units that have been employed, such as amount per census child, per child in average attendance, per pupil recitation hour, per subject, and per teacher. Each of these has a value for certain pur-

poses, but experience points to "average daily attendance" as the best single unit to use here where we are dealing with total outlay for schools. Table XIV illustrates an assemblage of such data.

TABLE XIV. AMOUNT SPENT PER PUPIL IN AVERAGE DAILY ATTENDANCE

CITY	AMOUNT
1. Brookline, Massachusetts	$76
2. Stockton, California	61
3. Boise, Idaho	58
4. Colorado Springs, Colorado	57
5. Bellingham, Washington	54
6. Everett, Washington	51
7. Madison, Wisconsin	49
8. Aurora, Illinois	48
9. Easton, Pennsylvania	37
10. Austin, Texas	29

Assuming that from the standpoint of need these ten cities are comparable, then it is obvious that Austin either is not making the effort that is made in Brookline to meet its educational need, or that the taxable wealth in Austin is very much less per pupil to be educated.

How the city's revenues are used. Another way of showing how well a city is financing its schools is to see what portion of the entire city revenue is devoted to the support of schools. According to an extensive study [1] made for the year 1900, and confirmed by subsequent studies, a wide variation exists in practice even among cities of the same class. According to Elliott's study of all cities of 30,000 population or above, 50 per cent spent from 19.65 to 30.58 per cent of their revenues for schools. Reference to Figure 2, page 46, shows that Stockton spent 45.3 per cent of its revenue for schools and libraries, and Table X, page 45,

[1] Elliott, E. C.: *Some Fiscal Aspects of Education.* Teachers College Contributions to Education, New York, 1905.

shows a variation of from 20.3 per cent to 48.6 per cent for education in ten selected cities. If in this manner we compare any city with as large a group as can be found in its class, and find it much below the median of the group, we must regard it either as not adequately meeting its educational needs, or as spending something less than a fair proportion of its revenues for schools. Figure 5 shows an effective graphic method for presenting such facts.[1]

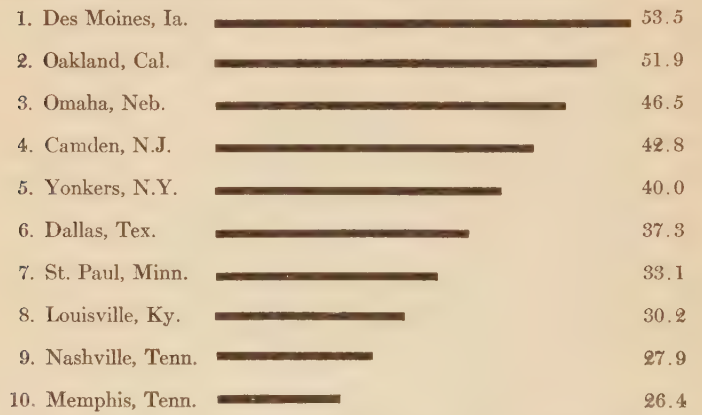
1. Des Moines, Ia. 53.5
2. Oakland, Cal. 51.9
3. Omaha, Neb. 46.5
4. Camden, N.J. 42.8
5. Yonkers, N.Y. 40.0
6. Dallas, Tex. 37.3
7. St. Paul, Minn. 33.1
8. Louisville, Ky. 30.2
9. Nashville, Tenn. 27.9
10. Memphis, Tenn. 26.4

FIG. 5. A COMPARISON OF CITIES WITH RESPECT TO THE PERCENTAGE OF TOTAL REVENUES DEVOTED TO EDUCATION
(*Financial Statistics of Cities, 1921.*)

5. Present financial status of the schools

Public credit an asset. How much a given city can spend on schools in any given year depends not only upon its taxable wealth, but also upon the condition of its finances. A

[1] It must be kept in mind that this is at best only a rough comparison. One city may be spending a large amount and another city nothing on a municipal power plant or other enterprise which will furnish service to the taxpayer at cost, and so, instead of representing a burden, that expenditure represents an actual saving. Such facts must be taken into account when such comparisons are made.

city that is in debt is, in the money market, exactly the same as any corporation or an individual. By debt, public as well as private credit is depleted, and when its credit is fully consumed a municipality, as well as a private individual, is forced to operate on a strictly cash basis.

How a city shall use its credit, therefore, is simply a question of what it will do with one of its important assets, and the public should be just as careful about issuing bonds as is an individual about mortgaging his property.

One of the first steps in the study of the schools' finances should be the study, not only of the taxable and true wealth, but also of its indebtedness. Not only the extent of the debts, and so the extent to which their credit has been used up, but also what use has been made of the borrowed sums, the conditions under which their liquidation must be effected, and to what extent the large financial needs of the present and the future are provided for, must be considered.

Furthermore, it is not the school debts alone, but all public debts for which the property of the district is responsible, with which we are concerned when we are trying to define the financial status of the district.

When should a city go in debt? Only by a more exhaustive study of city and school finance than has yet been made would it be possible to answer this question fully. Certainly there are many conditions under which bonding is wise, and many others under which bonding is unwise. Sometime these conditions will be studied and so classified as to reveal sound guiding principles.[1] Until then, action must be based in part upon financial principles, and in part upon our best business judgment.

[1] In general, when a city has reached a size where there is a regular and constant demand for outlay funds each year, it is believed that a system of regular taxation might replace a system of bonding, or deferred taxation. There are, however, many difficult points of justice and equity and getting under way, that are in need of careful analysis on the basis of concrete cases.

Authorities on public finance generally agree that public credit may be used: (1) to meet casual deficits; (2) to provide funds for emergencies; and (3) to handle certain public investments. Since the second condition does not apply to education, it follows that school debts may be incurred to meet temporary situations caused by slight failure of the budget to foresee or fully provide for all needs, or to make adjustment between the date of income and the date of expenditure, and to meet investment needs essential for expansion of plant or other large outlay. In practice, however, investment is very hard to define. Some cities have issued bonds to pay current expenses;[1] others have refused to issue bonds for any purpose. Between these extremes lies a very wide variety of interpretations of so-called investment needs. One study has shown that cities that are most in debt spend more liberally for schools than do cities not much burdened by debts.[2] Such facts seem to argue that in practice there is no agreement as to what is an investment need, and that going in debt is to a considerable degree a matter of psychology. This is partly shown by the reluctance with which certain cities were willing to vote school bonds before the World War, and by the readiness of the same cities to vote much larger bond issues since. Table XV shows the wide variations in practice that exist.[3]

If we consult the facts we shall quickly find that most cities in the United States are in debt for school buildings.[4] If we could describe and classify the financial conditions of

[1] See the Montana statute of 1921, which provided for the funding of the current indebtedness of school districts and municipalities.

[2] Clark, Earle: "The Indebtedness of City School Systems and Current School Expenditures"; in *American School Board Journal*, March, 1917.

[3] For a discussion of the need for publicity in school bond campaigns, see Alexander and Theisen: *Publicity Campaigns for Better School Support.* World Book Company, Yonkers, New York, 1921.

[4] See *Financial Statistics of Cities*, 1921, Table 15. Government Printing Office, Washington, D.C.

these cities as they existed when the different debts were assumed, together with the relation of the conditions of the debt to the permanency of the thing purchased, we could in large part replace guessing with fact, so that wrong psychological conditions would have less chance of misleading cities in this important matter. In other words, whether a given situation calls for a large investment or not is not wholly a matter of enthusiasm or the lack of it, but one of whether or not the city's needs are too urgent to be deferred. In such cases only should cities resort to borrowing.

To what extent should a city go in debt? If a city is not in debt, then most any unusual outlay might be treated as an investment need in order to spread payment over a longer period. If, however, the city is already deeply in debt the situation must be different. State constitutions or statutory provisions frequently determine the extent to which cities may bond,[1] but, in fact, there is little evidence that municipal indebtedness is really regulated by such provisions, since it is within such limitations that cities: (1) borrow for purposes which should be met by taxation; (2) borrow too much even when the purpose is legitimate; (3) and borrow to refund or in order to defer debt payment — the three main abuses of public credit.[2]

1. Real need a determining factor. To answer our question, then, we cannot say, "as much as the law allows," but rather, "only to the extent necessary to meet a legitimate need" that cannot well be met by an immediate tax. And

[1] See Bard, Harry Irwin: *The City School District*, p. 83; also see Pyle, J. F.: "School Finance, Legal Basis of": in *Elementary School Journal*, vol. 19, p. 445. (February, 1919.)

[2] That there should be some real administrative control over public borrowing, such as is common in England and other European countries, is recognized. Until then, the school survey must scrutinize all debts if it would ascertain the financial status of the city. This is not to imply that all debts are evil. Far from it. Public and private debts are financial devices only and, as such, may be used either to good or bad ends.

here, as already indicated, there will be differences of opinion. At the close of the year 1918, the per capita net debt in the 56 cities having a population of from 50,000 to 100,000 varied from $10.27 to $163.95. Such a wide variation seems to suggest little in the way of standard practice. This we can say, however, that, other things being equal, the city carrying an indebtedness of $163.95 per capita is less able to carry more debt than is the city with a per capita debt of $10.27.

2. Should utilize experience of other cities. A comparative study of a group of cities, similar in size and general location and character, would surely indicate the reasonable limitations which a city should observe. Table XV presents an array of this character for ten cities, together with the amount of taxable wealth per capita and the amount of tax

TABLE XV. SHOWING THE TAXABLE WEALTH, THE NET DEBT, AND THE CURRENT TAX RATE FOR TEN CITIES

(Compiled from *Financial Statistics of Cities*, United States Census Bureau, 1921)

CITY	PER CAPITA TRUE WEALTH	PER CAPITA NET DEBT	TAX LEVY PER $1000 TRUE WEALTH	DEBT EXPRESSED AS PER CENT OF	
				Assessed wealth	True wealth
Akron, Ohio	$2461.49	$86.58	$15.40	3.5	3.5
Peoria, Ill	1561.06	14.45	15.08	4.2	.9
Fort Wayne, Ind.	1360.30	15.17	13.40	2.7	1.1
Sioux City, Ia.	1305.55	25.36	20.09	7.6	1.9
Springfield, O.	1295.60	46.76	14.90	3.6	3.6
Springfield, Ill.	1246.29	22.61	15.99	8.0	1.8
St. Joseph, Mo.	1210.30	27.55	14.49	5.4	2.2
Terre Haute, Ind.	985.84	18.56	20.51	3.1	1.9
Wichita, Kan.	957.98	23.82	20.30	2.5	2.5
Saginaw, Mich.	839.69	14.77	27.41	1.7	1.7
Average	$1322.41	$29.56	$17.76	4.2	2.1

that each $1000 of that wealth is now bearing, and then expresses the debt as a percentage of the city's total assessed valuation of wealth, and of real wealth.

A careful study of the figures of this table will reveal just about what the debt means as an actual strain upon the city's resources. Akron has the heaviest per capita debt, but with its large per capita wealth it is able to pay interest on this debt and care for current expenses on a tax levy of $15.40 per $1000 of its wealth, which is below the average tax levy for the ten cities. Further, when this debt of $86.58 per capita is expressed as a percentage of the city's assessed wealth we see that it is equal to but 3.5 per cent, whereas the average for the ten cities is 4.2 per cent. So, relative to assessed wealth, Akron is not badly in debt. When measured by the city's true wealth, however, as will be seen from column 5, Akron's burden is heavy. A similar examination of the figures for Springfield, Illinois, will show almost the reverse of this at every point except the last.

3. Relation of debt to taxable wealth. The question arises, then, what is the best measure of the extent of a city's debt? In one sense the answer would seem to be column four in our table, since, after all, the amount of taxable wealth is the actual security back of the loan. In another sense, however, it is column 5, because taxable wealth can be expanded to the limit of true wealth.

In spite of the wide variation in all the figures of this table, it is possible by such comparisons to figure out the city which has the largest proportion of its public credit unused, and it is that rank that any given city should desire to hold. From the standpoint of debt, Saginaw holds this position among the cities represented in our table, in spite of her low per capita wealth. The financial status of Saginaw is modified slightly, however, by the fact that a constant heavy tax levy is necessary to handle current costs of government.

To what extent should a city's debts be for schools? A city may go into debt for a city hall, parks, bridges, fire houses, police stations, sewers, or an auditorium to the neglect of the schools. If the city's school building program is behind, then this aspect of the city's indebtedness should be gone into. Here there are no standards to go by, but common sense will be a fair guide. That there should be a constant relationship between debts for schools and debts for other needs is not to be expected, even among cities of the same population and industrial class, because some cities are much older than others, some are growing rapidly while others are declining or remaining stationary, some cover a relatively large area and are relatively thickly populated, and there are almost innumerable other reasons why cities have had very different lines of development.

It is obvious, however, that in spite of the diversity in practice as shown for the ten cities in Table XVI, "what other cities are doing" is suggestive when we consider the circumstances under which the debts have been assumed. Among ten cities selected at random from a certain

TABLE XVI. SHOWING THE PERCENTAGE OF TOTAL CITY DEBT THAT WAS ASSUMED FOR SCHOOL BUILDINGS IN TEN CITIES

(Computed from Table 15, *Financial Statistics of Cities*, United States Census Bureau, 1921)

Denver, Colo.	1.2	Reading, Pa.	26.4
Columbus, Ohio	8.7	Salt Lake City	30.1
Kansas City, Kan.	9.4	Des Moines, Ia.	32.4
Omaha, Neb.	17.7	Grand Rapids, Wis.	34.1
Oakland, Cal.	25.8	Scranton, Pa.	44.7

population-group the practice varies widely, but if, in the city being surveyed, we should find a shortage of buildings and a relatively heavy city debt, together with a relatively low percentage of that debt assumed for school buildings, we could certainly say that the past financial policy was very

bad for education, and that, unless good cause could be shown, it ought to be changed so that a larger percentage of the public debt would be for schools.

The terms of indebtedness. To meet temporary deficits, short-time notes or similar provision can be made. To meet large and permanent outlays, such as the cost for buildings and grounds, serial bonds are unquestionably the best method so far devised. Certain other principles governing liquidation should also be observed. The bonds should not be made for a period longer than that during which the object purchased will render service, and ordinarily should be for less.[1] If a building is to last twenty years, then the time limit on the bonds surely ought not to be more than twenty years. In case the proceeds from the sale of the bonds is to be used to purchase land the time limit could be longer, while if it is to be spent on something such as apparatus or playground equipment the term should be quite short.

Each issue of bonds should be examined in the light of these principles, and the financial policy and the present financial status of the system should be rated high or low according as these principles have or have not been observed.

6. How the school money is spent.

Administering the funds. The sources of a city's school revenue, the machinery through which that revenue is obtained, the amount the city raises and spends for schools, and the character and extent of the city's indebtedness may be very satisfactory and yet, because of wrong educational

[1] We ought to be able to classify school buildings in terms of the expected length of service, as a ten-, a twenty-, or a forty-year building. This should be easily possible for trained school architects, and would have a direct bearing on the terms of the bonds to be issued. In any case, though, the time limit ought to be well within the life of the building, and ought not to be too long. Land for buildings or for playgrounds could be purchased on longer-term loans because they last indefinitely.

aims and, in consequence, wrong administration of available funds, the financing of the schools may be ineffective and wasteful. From the standpoint of the superintendent's responsibility, the question of how the school income is administered is the largest question we have to deal with in this chapter. The budget is the school policy written in financial terms, and so the real constructive thinking and work of the superintendent are to be found in the budget, where the distribution of the school expenditures is clearly set forth.

Accounting and budgeting. Our first point of contact in an attempt to measure the efficiency of a school system in this respect is with the system of accounting. A poor system of accounting is a serious handicap in the administration of a school system, for the reason that the analysis of accounts is a clear statement of how the funds have been used, and hence of the superintendent's educational policy. A complete system of accounting for a school system would include not only such records as would make possible a complete audit of all moneys handled, but also such analysis of accounts and such cost accounting as would be necessary to give the information needed by the superintendent in formulating and revising his educational policies.

The first test of a system of accounts, then, is the extent to which it conforms to the plan of administration. Just as a school machine must be worked out in terms of essential functions [1] which have been conceived in the light of the educational aims of a city, so a system of accounts must be kept in respect to those same functions if we are to know the cost of those functions, and hence the cost of realizing the many separate features of the schools' aims.

The two major items of cost. If we turn to Figure 4, page 68, and examine our administrative plan, we can read-

[1] See Chapter III, section 2.

ily distinguish between two main functions. One has to do with training the children, the other with the business that is necessary to but not directly connected with the actual process of training. Under the "cost of education" we would include the salaries of the superintendent, principals, supervisors, and teachers, and the cost of all the instructional supplies and stationery and equipment, as well as stenographic and other service directly connected with these functions. Under "business costs" we should include expenditures connected with the offices of the board of education, the clerk, and the superintendent of buildings and grounds, including janitor service and other costs connected with operating and maintaining the plant.

"Business costs" or overhead costs are necessary, but incidental to educational costs, and should consume as little as possible of the school income. When the business of the schools becomes large, there is a rather common tendency for the business department to want to be independent of the educational department. When this is accomplished, its aims and methods tend to conform to those of business or politics, with the accompanying tendency to build up a complicated and costly business machine.

Expansion of plant a third item. Beyond these two main groups of accounts there is the problem of expansion, which calls for occasional outlays of large sums for buildings and grounds. Thus we have three main financial problems to meet — education, business, and outlays for expansion. These three groups of accounts must be studied in their relation to each other, and each must be carefully analyzed along functional lines if we are to understand the real cost of a school system.

The system of accounting recently adopted by a large number of city school systems has recognized the principles here suggested, and has already gone far toward making pos-

sible accurate financial comparisons between cities.[1] The main expense headings used in this plan are as follows:

I. Expenses of general control.
II. Expenses of instruction.
III. Expenses of operating the school plant.
IV. Expenses of maintenance of school plant.
V. Expenses of auxiliary agencies.
VI. Miscellaneous expenses.
VII. Outlays.
VIII. Other payments.

Each of these main items is subdivided, and each of the subdivisions is again divided by types of schools and activities. By a study of this plan it is easy to see that groups I, III, and IV come under our heading "Business costs," that groups II, V, and VI come under "Education costs," and that groups VII and VIII come under "Outlays." The revenues are similarly analyzed. Thus with each account standing for an educational function, it becomes possible to think of every financial problem in educational terms.

Accounting in budget analysis. Without an accounting system that is devised in such terms it is not possible to prepare a scientifically analyzed budget. As has been said, the school budget should be the financial interpretation of the school policy. It can be if its analysis of receipts and expenditures is thorough, and if it is written in terms of the school machinery which gives expression to the functions that are to be served.[2]

[1] The system here referred to was devised by the coöperation of the United States Bureau of Education, the United States Census Office, the Association of School Accounting Officers, and the Committee of the National Council of Education on Uniform Records and Reports. The form was published by the United States Bureau of Education, Washington, D.C., as Bulletin no. 3, 1912.

[2] Questions, partly financial, but more especially administrative, are: Who should prepare the budget, and just how should it be worked out? The practice varies, but the tendency seems to be in the direction of placing

Units of cost. With a good accounting system it will be possible for the surveyor to make as detailed a study of expenditures as seems desirable. Since there is no absolute standard by means of which to judge how much should be spent on any single item, such as high schools, or administration, or clerical help for principals, it will be necessary to study the city in comparison with other cities, and hence to adopt certain units of cost which will not only express the real meaning of the expenditures, but which will have the same significance for all cities.

To illustrate, there would be no reason for stating the cost of administration as so much per family represented in the school system, since the number of families is not a clear index to the extent and character of the task of administration. The size and character of the task are roughly indicated by the actual number of children taught. Hence "cost per pupil" is a unit that has more meaning, and one that would apply approximately the same in all large cities.[1]

First, it is necessary to remember that no one unit is a satisfactory measure of all classes of expenditures. We shall, of necessity, use one measure for cost of buildings, another for cost of instruction, and another for cost of repairs. For purposes of comparison the following units have been found reasonably satisfactory:

the main responsibility upon the superintendent, rather than upon the board of education or the business offices. The discussions of the executive as opposed to the legislative control in budget-making are of special value in education now, while our whole theory of school administration is being revised. The plan in use in the city of Boston is worthy of study. See page 10 of the 1919 *Report of the Superintendent of Schools of Boston*, for a statement as to the plan in use there.

[1] Just how large a school system should be before we rely too much on this unit as a medium of comparison is a question. Some of the difficulties in the way of a general use of it appears in *The Cost of Education in California*, by Sears and Cubberley. The Macmillan Company, New York, 1924.

For instruction, administration, and supervision — "cost per pupil in average daily attendance," [1] and "cost per teacher."

For land — "cost per square foot" or, in some cases, "front foot" is a safe unit.

For buildings — "cost per cubic foot," providing standard methods for determining cubage are used.

For maintenance — figure this in terms of the depreciation. If we allow two per cent for depreciation each year, through a period of fifty years, then the cost of repairs can be expressed as a percentage of the amount allowed for depreciation.

For operation — different units of cost will have to be used for the different items. Heating should be figured by "cubic foot of space"; cleaning by "square foot of space"; and electricity, gas, and water by the customary meter units.

If budgets were written and accounts kept in these terms, a comparative study of school costs would be simple. However, not all the units here suggested are well established in school accounting, hence any but a very costly survey is apt to have to work in somewhat more general terms.

The main groups of expenditures. Once we have measured our city with respect to how much of its total revenues it is devoting to education, our next step is, How does it spend its school money? To answer this, the city's practice through a period of years should first be studied, to show the development of its policy, and then comparison should be made with other cities. The historical study should be concerned with the main groups of expenditures only unless there is special cause for a detailed study of some item. Possibly the three groups above suggested may be studied first, or preferably perhaps the eight divisions provided for

[1] The accuracy will be increased, first, if average daily attendance is figured in the same way for all cities, and second, if this unit is refined by using "per hour instruction" for each pupil in average daily attendance. Further, this unit should be used with care when dealing with small numbers of children, small numbers of classes, or small items in any part of the budget. It should not be used as a basis for comparing small with large schools or school systems.

in the form from which we have quoted should be followed. At any rate, we want to know: (1) what part of the money goes into actual instructional work; (2) what goes for capital outlays; and (3) what for the work and materials necessary to the management of the schools.

Such data should cover a decade or more, if possible, and should be presented in both tabular and graphic form in order that we may have not only exact facts, but also a clear picture of the tendencies shown by the facts. As illustrative of this purpose Table XVII and Figure 6 are presented.

TABLE XVII. A DECADE OF BOISE'S CHIEF EXPENDITURES FOR SCHOOLS

(Arranged from Table 56 in *The Boise Survey*)

YEAR	EXPENDITURES FOR			TOTAL EXPENDITURES
	Business	Instruction	Outlays	
1910	$25,241	$ 83,452	$ 70,625	$179,421
1911	32,244	110,125	71,228	213,600
1912	30,910	133,809	60,458	225,282
1913	31,146	143,056	197,873	282,116
1914	30,306	147,586	64,597	242,443
1915	25,137	148,592	30,580	214,312
1916	34,072	144,547	29,372	209,540
1917	43,902	142,761	42,560	229,226
1918	58,406	146,325	39,323	250,847
1919	50,765	164,534	29,252	233,201

Instruction costs here include salaries and other expenditures directly connected with teaching; business costs include maintenance, operation, and general control; outlays include cost of buildings and grounds. By a study of Table XVII and of Figure 6 it is possible to see what has been the trend of school expenditures in Boise for a decade. If de-

sirable, each of these items could be analyzed and studied in a similar way. They could also be expressed in terms of any

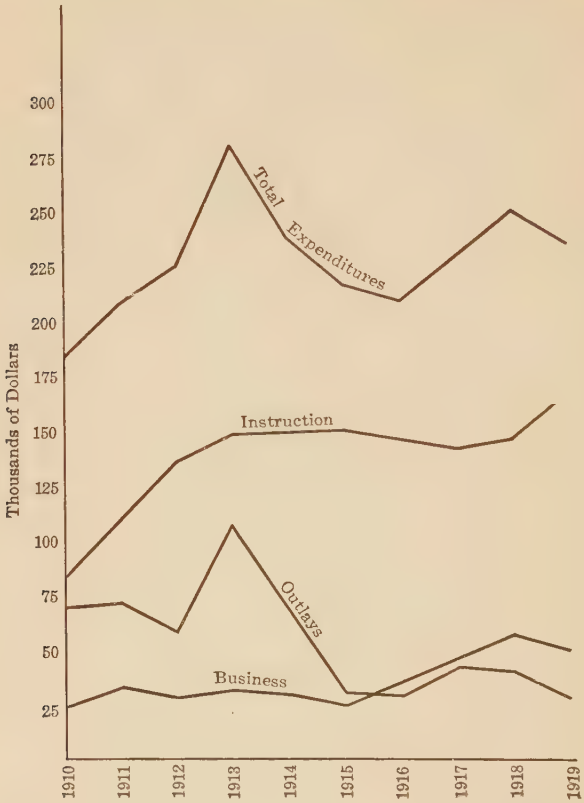

FIG. 6. SHOWING DISTRIBUTION OF SCHOOL EXPENDITURES IN THE CITY OF BOISE, IDAHO, THROUGH A TEN-YEAR PERIOD (BASED ON TABLE XVII)

of the units of cost above suggested, for example, in terms of pupils in average daily attendance, or per pupil hour of instruction. Such procedure would be valuable in showing

whether or not the education of a child is becoming more expensive in the city.

Percentage distribution of expenditures. A second step calls for an analysis of school expenditures to see, in detail, just how each dollar of school money is distributed. For this each item of cost must be expressed as a percentage of total maintenance costs. Figure 7 and Table XVIII illustrate how such data may be arranged for study. Figure 7 shows graphically just how each dollar of school money (not including outlay for buildings) was spent in the city of Racine, Wisconsin, for the year 1920–21. Though this graphic representation gives one a clear picture of how the money was spent, it is only by comparison with other cities that we are able to say whether or not such a distribution is reasonably equitable. Such a comparison is illustrated by Table XVIII, from which it is evident that different items receive very different emphasis in different cities. For example, one city devotes eighty-five per cent of its expenditures to teachers' salaries, and another but fifty-six per cent.

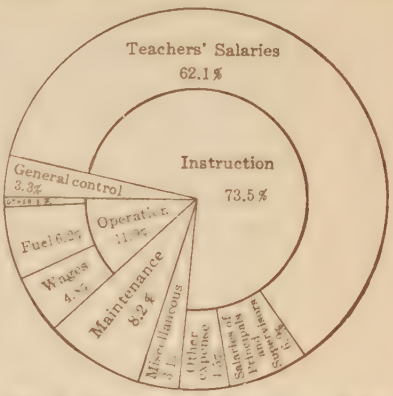

FIG. 7. SHOWING HOW EACH DOLLAR OF SCHOOL REVENUE WAS SPENT IN RACINE, WISCONSIN, IN 1921
(Data from *Annual Report* of the Board of Education)

The average practice of a fairly large and homogeneous group of cities would furnish a far better basis of comparison than would any one city. There is no accepted standard apportionment for the various items of cost, nor is it likely

there can be until we have standards for organization, curricula, size of classes, numbers of supervisors, buildings, and indeed of all school procedure. Yet if we find a city ranking high in overhead and low in instruction costs there is good reason for seeking an explanation for it.

It is especially worth while to arrange a table similar to this and showing the distribution of funds to the different types of schools, as: kindergarten, elementary, high, junior college, technical, night schools, and other special schools. Care must be exercised to interpret the figures of such a table in the light of the relative proportion of the total educational burden being borne by each of the schools.[1]

Costs analyzed and compared. An equitable distribution of costs, though an important basis for judging the financial policy, does not indicate the amount of money that is being spent for any given item. A city with a very equitable distribution of its funds may still be spending too little, or it may be wasting money because it is paying too much for the actual work accomplished. While it would be very difficult to prove either of these, in absolute terms, a comparative study will nevertheless throw light upon the situation.

For this purpose one or several studies may prove desirable. For all the best unit of measure will be — "pupil in average daily attendance." One or more of the following types of tables might be arranged for study, as the need seemed evident.

1. Cost of "overhead," and of "instruction."
2. Cost of total "overhead," and of each of the main items included in overhead, as: general control, maintenance, operation.
3. Cost of total "instruction," and of each main item in instruction, as: administration, supervision, teaching, textbooks, equipment, and supplies, as in Table XIX, below.

[1] For illustration of such interpretation see *The Boise Survey*, p. 272, and Figure 39.

Table XVIII. Percentage of Total Expenditures for School Maintenance Devoted to Each of the Various Purposes, in Ten Cities

(Arranged from Table 27 in *A Study of City School Systems*, by Harlan Updegraff. United States Bureau of Education, Bulletin no. 5, 1912)

City	Teachers' Salaries	Salaries and Expenses of Supervisors	Books and Supplies	Janitors, Engineers, and Firemen	Fuel	Water	Light and Power	Janitors' Supplies and Expenses	Apparatus and Mat. for Equipment	School Libraries	Repairs and Replacement of Equipment	Repairs to Buildings	Total
Savannah, Ga.	85.1	1.2	– –	4.0	1.5	– –	.1	.5	.6	– –	– –	1.5	94.4
Norfolk, Va.	76.5		1.7	8.7	2.2		.4	.8	.5	– –	1.1	3.8	95.7
Peoria, Ill.	72.3	3.4	1.4	6.2	2.5	– –	.3	.2	1.6	– –	– –	4.5	92.4
Manchester, N.H.	70.5	– –	4.9	4.9	7.3	.8	.6	1.0	.4	– –	1.1	4.8	95.5
Lawrence, Mass.	68.2	2.9	3.9	6.7	5.1		1.0	1.7	– –	– –	.1	4.8	94.3
Elizabeth, N.J.	67.5	1.3	7.4	6.5	3.1	.3	1.1	.8		.1	3.6	2.4	94.0
Saginaw, Mich.	64.0	2.2	3.6	8.2	3.9	.6	.4	1.0	2.2	1.8	.6	5.1	93.8
Harrisburg, Pa.	62.8	1.1	8.3	8.2	3.6	1	.5	.3	.9	– –	2.4	4.8	93.1
Troy, N.Y.	58.3	2.1	2.2	6.5	5.1	– –	.5	1.0	.2	.8	2.0	11.0	90.1
Erie, Pa.	56.4	9.6	5.8	7.5	4.2	– –	.8	1.4	.1	– –	.5	2.2	88.5
Average	68.2	2.4	3.9	6.7	3.9	.2	.6	.9	.7	.3	1.1	4.5	93.2

Note: It is helpful to rank the cities for each item, so that the relative position of any city in any item may be seen at a glance. See above reference.

4. Detailed analysis of any item of overhead, such as maintenance, showing cost by items.
5. Detailed analysis of any item in instruction cost, as, supervision, cost of salaries, assistance, and supplies.[1]

Any or all of these studies could be made by schools, or by groups of schools, as high, elementary, etc., or by school studies if desired.[2] Table XIX will serve to illustrate how such data may be presented. Here instruction costs are classified under six heads, each of which could be further

TABLE XIX. PER PUPIL COST OF INSTRUCTION, IN TEN CITIES

(Computed from Tables 14 and 17, vol. 2, *Report of United States Commissioner of Education*, 1917)

CITY	TOTAL	SALARIES AND EXPENSES				TEXT-BOOKS	SUPPLIES, ETC.
		Supt.	Principals	Supervisors	Teachers		
Houghton, Mich.....	$35.64	$2.08	$1.04	$5.93	$25.07	$ .94	$ .58
Benton Harbor, Mich.	31.17	1.52			26.88	.55	2.22
Cadillac, Mich.....	23.68	1.13	2.44	3.45	14.56	.51	1.63
Iron Mountain, Mich.	25.88	1.53	.66	71	22.00	.05	.93
Chisholm, Minn.....	46.82	4.83	1.51	1.30	34.56	1.13	3.49
Eveleth, Minn.....	49.89	3.07		3.39	37.37	1.36	4.79
Hibbing, Minn.....	73.73	3.41	4.54	13.26	44.17	1.96	6.39
Waukesha, Wis.....	23.62	1.62	.94	.72	20.16	.02	.16
West Allis, Wis.....	30.82	1.78	1.76	2.99	17.03	1.09	5.57
Centerville, Iowa....	24.63	1.20	3.00	1.20	17.43	1.52	.28

analyzed if necessary. From this table it is clear that widely varying amounts are spent in these ten small cities for the item of instruction, and that equally wide variation exists in each of the subordinate items.

Care must be exercised not to misinterpret a table of this kind. Assuming that the schools of these cities are equally well staffed, it is clear that Hibbing is doing more for its

[1] For a very detailed study see Strayer, Geo. D.: *City School Expenditures*. Teachers College, Columbia University, New York, 1905.

[2] An excellent illustration of an exhaustive and detailed study of cost by subjects will be found in Vol. II of the *Publications of the Educational Finance Inquiry*. New York, The Macmillan Company, 1924.

children than is any other city in the group, and that Waukesha is doing the least, if we may judge by our total column. It is clear that Hibbing believed strongly in supervision, and that Benton Harbor did not. Obviously we have here two points of view with respect to the value of supervision. Benton Harbor apparently has neither principals nor supervisors, while Hibbing has both. Clearly it is necessary to examine these figures carefully. Other things being equal, we should doubt the wisdom of the Benton Harbor plan.

When such detailed study is undertaken we at once raise the question, what are the results obtained? While a general survey is not likely to go into such great detail, it is obvious that the superintendent at Benton Harbor would not be justified in adopting the policy he has without careful study. Our table is of value in showing the different plans that are in use for carrying on the actual work of instruction, and our need for a clearer understanding of the principles back of the various plans which these figures suggest.

Influencing factors. In comparing the expenditures of one city with those of another it must be remembered that there are a number of factors which affect the situation, sometimes one way and sometimes another. If two cities having the same number of children and equal budgets are compared, the one having the fewer separate buildings will likely be spending less per pupil than the other because janitor work, supplies, and teaching all can be handled more economically. Yet it may appear that the city with this advantage is not as well staffed as is the other city. Such items call for careful study before conclusions are drawn.

Other points of a similar character are: size of class groups; the breadth and richness of the curriculum; the margin between actual school needs, and the building and equipment provision made; the percentage of census chil-

dren in school, and the cost of overhead. The point is that when we compare cities with respect to expenditures we must interpret the results in the light of the conditions under which the cities are operating, in the light of the aims they are attempting to realize, and in the light of the kind of education they are providing.

7. Business management

Business organization. When we consider the large sums of money that are being used for education, the extensive plant, the large force of workers, and the vast amount of equipment and supplies, it is clear that if our educational aims are to be realized there must be an organization and management that will care for the business and clerical tasks that are incident to the working of the educational machinery.

In Figure 4, page 68, we presented a plan of organization suitable for a city of 50,000 people. In that plan provision for the management of these matters of business was made, and a special point was made of the subordinate relationship of the director of this work to the superintendent of schools. In a small city one man with clerical help is able to care for these duties, but in a large city there must be a larger staff and a division of the functions.

The task defined. A mere list of the duties that come under this head will suggest how very large this aspect of a school survey may become, and how important is this aspect of the superintendent's policy. These duties include:

1. The purchase of land and the construction and upkeep of buildings. This calls for a large financial program, including the sale and redemption of bonds, the handling of deeds, insurance and contracts, the employment of architects and builders, and all the numerous details which these items suggest. The repair program alone in a large city calls for an organized staff of carpenters, painters, glaziers, and electricians.

2. The control and care of the plant, calling for a staff of engineers, janitors, and laborers.
3. Purchasing equipment and supplies.
4. Receipt, storage, and distribution of supplies.
5. Receiving, banking, and disbursing funds in accordance with the budget.
6. Recording, filing, accounting, and auditing.
7. Inventorying and appraising of property.
8. Financial reporting.

When one considers that a city of 100,000 people may have from fifty to seventy-five school buildings, and a budget of from one half to three quarters of a million dollars, the importance of a more thorough survey of these problems than has been common to date becomes evident.[1]

The surveyor's first concern is with the plan of organization by means of which these matters are handled. If this meets the requirements laid down in Chapter III, which calls for one, and only one line of authority, beginning with the superintendent and going directly to the business manager or director — as the first such officer (in Cleveland in this country) was called — and thence through department heads to the subordinate workers; then the surveyor may pass to a study of the methods of operation, the equipment and its arrangement, the staff of workers, the cost of the department, and the efficiency which it has attained.

Standards of efficiency. In this latter task he will not look quite in vain for standards. The issuance and redemption of bonds, the transfer of deeds, the formulation of contracts, all are governed by law. Good business principles call for the purchase of standardized materials, for the purchase in large lots, for the employment of competent help, for strict obedience of orders, for small unused cash balances, for orderly storage and transfer of goods, for the

[1] The larger surveys that have treated this subject at some length are the Cleveland, Denver, St. Louis, and New York City school surveys.

central location of repair shops, for prompt handling of all orders, for systematic bookkeeping and accounting, for regular and correct inventory and appraisal of property and goods on hand, for an adequate system of cost accounting and auditing, and for preparation of data to be used in making budget estimates.

It is not possible in a short treatise to explain in detail just what checks are best, and how they may be applied in these many different situations. Coal may be purchased by heat units rather than by tons. Standard sizes, forms, and makes of fixtures and toilet articles; of tools, paints, tints, and janitors' supplies; and, to some extent, of instructional supplies, may be laid down, and all may be bought by wholesale lots. Janitors may be assigned in terms of square feet of space to be cleaned, and their work tested by hygienic standards. At every point the surveyor will need to use not only decidedly good business judgment, where the business exists solely for educational purposes, but he must know well what the educational purposes are and be able to distinguish good from bad service where he has no standards of measure to apply. Some further suggestions will be found in Chapters V, VII, and XVII.

8. Evaluating the findings

The financial problem is far the most difficult part of any school survey. Every financial fact has not only a business, but also an educational interpretation. Every expenditure, too, has a bearing upon the total, and so upon every other expenditure. There are no absolute standards for judging how much a city should invest in schools, or how the investment should be made, or when and to what extent public credit should be drawn upon.

Placing responsibility. After a careful study has been made of the several aspects of the financial problem, as here

suggested, frequently it will be found that there are certain weaknesses, due not to the school board or to the school staff, but to forces beyond the control of either. The legal basis upon which the financial system rests may be weak, or it may even prevent effective service. Again, the amount of money provided by action of the public may be below the amount requested by the board; it may not be available when needed; or its expenditure may be so fully provided for by law as to be unduly restrictive. In such cases the survey not only must make clear that the responsibility lies with the people, but it must point the way to a solution of the difficulty.[1] Similarly, where the responsibility clearly rests upon the board, or the superintendent, or the business staff it must be made evident. The fault may be with the people, with the laws, with the school officials, with the plan of organization, or with the equipment and conditions under which the work has to be carried on. In any case the responsibility must be definitely placed if the survey is to be of value.

QUESTIONS FOR CLASS DISCUSSION

1. Which is easier, to measure the cost of a school system or to measure the capacity of a city to support a system? (See Chapter II, page 38, and read one or more survey reports for the answer to this question.)
2. Why, in a survey, should we give attention to the contribution the city makes to and receives from the State and county funds for schools?
3. How would you measure the ability of a district to support schools? How do each of the following bear on the problem: Per cent of population composed of young and old dependents; per cent eligible for schools; per cent of women; total true wealth; total social income; present indebtedness of district; per cent of cost of schools borne by the State and county?

[1] As excellent illustrations of such constructive criticisms, see the proposed legislation given in the Portland, Salt Lake City, Vermont, Maryland, and Virginia *Survey Reports*.

4. What are the difficulties in comparing cities: as to tax rate for schools; as to school costs; as to school indebtedness?
5. Compare the St. Louis, the Philadelphia, and the Salt Lake City survey reports as to the methods used: (1) to measure the city's ability to support schools; (2) to measure how expensive the schools are.
6. What value is there in the use of indexes in presenting the trend of school costs? (See the *Philadelphia Survey Report*, vol. II, p. 33; also, Ayres, Leonard P.: *An Index Number for State School Systems.*)
7. What is meant by overhead costs? What are the overhead costs in a school budget? How would you decide whether or not the overhead costs in a school system were too high?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Prepare answers to the first two questions raised at the beginning of this chapter, as they apply to some given city. If a number of cities are assigned to the members of the class, comparison of results may prove profitable.
2. Collect the facts necessary to show a given city's capacity to support schools. What survey reports offer the clearest analysis of this problem?
3. Make a study of a group of cities with respect to the bearing their indebtedness might legitimately have in determining the tax-rate for schools.
4. Make a comparative study of the distribution of school expenditures in a given group of cities, and check against survey reports.
5. Draw up a school budget for a given city about which you have such information as that suggested in Chapter II above.
6. Show graphically how the $1 of State tax and the $1 of local city tax were spent last year in your city.
7. Classify survey reports on the basis of:
   a. The way in which they have measured the cost of instruction.
   b. The units of cost used.
   c. Their treatment of indebtedness.
8. Gather from survey reports the advice offered on the question of bonding. Classify this information under such heads as:
   a. When to go in debt.
   b. Extent of debt.
   c. Purposes of debts.
   d. Methods for liquidating debts.

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Most of the *Survey Reports* have dealt with this problem.

See also the *Publications of the Educational Finance Inquiry*, 13 vols. New York, The Macmillan Company, 1923–24.

CHAPTER V

BUILDINGS AND THE BUILDING PROGRAM

1. The problem stated

Perspective on the problem. In surveying the building situation for a city, it is not the present merely, but the future as well that must be kept in mind. Since we can calculate for the future effectively only by first obtaining a clear perspective of the forces that have operated and are now operating to create demands for buildings, it follows that we must study, at least briefly, the historical development that has taken place.

It is not enough to say of a city, either that it is well or ill equipped with buildings, for in a few years the typical American city will have additional needs, not only as to actual classroom space, but as to types of buildings and rooms as well. Usually it is not for a static but for a rapidly changing city that a building program is to be outlined, and that in conformity with the needs of a community which is continually changing the character of its educational work to conform to the new demands which social changes and educational science are bringing to light.

Educational aspects of the problem. The building problem is primarily an educational problem. Buildings, grounds, and permanent equipment exist solely for the purpose of education. Education must be broadly interpreted, however. A beautiful and well-located building adds certain æsthetic elements to the environment, and is broadly educative for adults as well as for children. Vice versa, an unsightly building with ill-kept grounds may provide as good classrooms as a beautiful one, but, though it may cost less, it

should be condemned because it does not render the broad educational service properly demanded of school buildings.

In the development of a school plant many questions arise which are not directly educational in character. There are many architectural, engineering, and financial problems to be solved. The surveyor should keep in mind, though, that none of these exist except in respect to some educational purpose. The function to be served by the building, the rooms, the lighting or ventilating system, the stairways or the fire escapes, the corridors, basement, closets, offices, and laboratories, and the playgrounds and the apparatus, is the point of departure for the engineer, the architect, and the financier. When the educational function has been clearly set forth, and the financial conditions found satisfactory, then it is the business of the building expert to solve the mechanical and architectural problems thus created.

A school building program then must be written in terms of educational needs, and our measure of the efficiency of any plant as it exists must be in terms of the extent to which the plant is meeting the demands of a satisfactory educational program. Any building which makes necessary an unsatisfactory educational program or procedure is by that fact a poor building, regardless of the architectural or engineering principles which it may embody. Good building principles used to a wrong end are little better than wrong principles used to a right end.

Economic aspects of the problem. Not the least important nor the least difficult aspect of this part of a survey is that which has to do with the financing of the building program. It is the permanent investment part of the schools' financial problem, and usually calls for relatively large outlays at irregular intervals of time. Since generally it is not easy for a city to finance its building program as if it were a part of the current expenditures for maintenance,

it becomes necessary to devise a financial plan which will take care of the needs as they arise, which will not lay too heavy a burden upon the taxpayer, and which will be convenient and economical to handle.

The problem of this chapter. Having in mind that our survey is to outline a program covering a period of years, that this program is to be prepared with respect to the educational functions to be performed, and that a sound scheme of finance for the program must be devised, we will now list and state briefly the different phases of the problem with which this part of a survey must deal.

1. Educational needs defined. The first task is to make a study of the present and future building and equipment needs of the city. These needs must be defined as to extent, character, and location, and must be based upon such facts as are essential in determining each of these aspects of the needs and without respect to present facilities or present financial capacity.

The *extent* of the school plant needed will depend upon the number of children to be educated, upon the general plan of organization and management, upon the extent to which public parks, libraries, and other public plants may be utilized, and, to some extent, upon climate and other physical conditions.

The *character* of the school plant needs will depend upon the nature of the curriculum and the extra-curricular activities provided, the teaching methods employed, the size of the class groups, the extent of the community use of the school plant, the form of school organization, the health needs of the children, and upon the climatic conditions to be met.

The location of buildings and playgrounds will depend upon the distribution of the population, the industrial geography of the district, the accessibility of the place, its free-

dom from noise and other distractions, health conditions, freedom from light obstructions, proper drainage facilities, and upon the space available.

2. Efficiency of present facilities. The second step in the study is to make a complete inventory of the plant as it now stands. This may be done by making a thorough study of the extent, character, and distribution of the various parts of the school plant as they now stand. Here again the basis for measuring the efficiency is the particular function to be performed.

Such measures or inventories may be made by carefully analyzing and evaluating each part of the plant in the light of accepted standards, or in the light of the best practice in other cities. The score-card method is helpful in certain respects in that it represents a carefully assembled collection of standards and provides a simple method of applying them.

3. Ability of the city to meet its educational needs. A third step in this feature of the survey is a study of the financial capacity of the city to provide the kind of plant needed. This will call for a careful analysis of the entire financial status of the city. Its wealth, income, tax-rate, financial obligations for other things than education, the condition of its credit, and the changes which have taken place in each of these items through past years and which are likely to take place through the years to be covered by the building program — each must be carefully studied if the surveyor is to pass judgment upon the financial policy in vogue or if he is to propose a financial policy to care for the building program needed.

Constructive proposals to be made. Finally, in the light of the above three sets of facts, it will become the function of the survey to outline a constructive program for the present and the future. These proposals must show: (1) the extent

to which present needs are being met; (2) the good and bad points in the policy under which the schools have been operating, and the present and future needs which must be met; (3) the extent to which the city can afford to meet its needs; and, in some detail, (4) the financial plan best suited to the conditions of the city.

Further purpose of this chapter. It will be the further purpose of this chapter to explain how these four survey problems may be solved. To define a city's needs for plant expansion, to evaluate its present plant, to define its ability to enlarge its permanent investment in buildings and grounds, and to outline and show how to finance a plan of development will call for a wide variety of facts, as well as for a careful analysis and interpretation of the facts gathered.

Taking the four steps in the order outlined above, it will now be our purpose to show what facts are needed, how to assemble them, and how to bring them to bear upon the development of a new program.

2. The city's need for buildings and grounds

Definition of needs. In studying a city's needs for buildings and grounds, it will be wise at first to disregard the city's present equipment and its capacity to pay for a new program. The reason for this is plain. Every city ought to learn from a survey just what kind of plant it needs in order to carry out a modern school program. This does not mean that the survey will recommend action that does not have full regard for the possibilities of the present plant and the financial capacity of the city. It does not mean either that fanciful ideal needs will be set up. It means rather that the reasonable demands of a modern school system will be clearly stated. Such a statement of needs furnishes a most desirable background for any proposed program which the

survey recommends, and is the only sound basis upon which a school board may evaluate the survey proposals. Further, since this is the goal in the direction of which any program must point, it follows that the surveyor, as well as the school board, must have it clearly in mind.

There is no rule-of-thumb method for determining the building needs. Analysis of all the factors involved must be made, and the best possible judgment must be formed. Since we have not yet determined exactly how many pupils can best be taught in a single building or in a single classroom, our best procedure will be to form our judgment in the light of the best practice known. Our method is therefore a comparative method, and until we shall have established more definite norms by scientific studies, we can offer only this sort of judgment as to what are the building needs.

Population studies a basis. As pointed out above, there are two aspects of building needs to be kept in mind, namely, *extent* and *character*. To define either of these, certain population studies must be made, since the size, character, and distribution of the population so directly affect the building needs. Studies of the total population, school population, the distribution and density of the population — each with respect to the past, the present, and the probable future — will be needed. The kinds of facts necessary, how to assemble them, and how to interpret their bearing upon the extent and character of school building needs will be explained briefly.

The main sources of information for population studies will be national and state census reports. From these sources either the facts or government estimates can be obtained, by decades and by years, for the city to be studied.

The kinds of facts needed, and an appropriate method of assembly, are shown in Table XX.

TABLE XX. TOTAL POPULATION AND PERCENTAGE OF INCREASE BY DECADES, 1850 TO 1920, WITH ANNUAL ESTIMATES FOR 1921 TO 1930, FOR A LARGE CITY

YEAR	TOTAL POPULATION	PER CENT OF INCREASE
1930	833,127	44.7
1929	807,378	
1928	781,631	
1927	756,883	
1926	731,145	
1925	705,397	
1924	679,649	
1923	653,901	
1922	628,161	
1921	602,421	
1920	576,673	80.6
1910	319,198	211.5
1900	102,479	103.4
1890	50,395	350.6
1880	11,183	95.2
1870	5,728	30.6
1860	4,385	172.4
1850	1,610	

From the figures shown above, it is clear that this city's rate of growth has been very rapid, and that the prospect for a large increase during the next decade is clear. Whether this expansion will come from increase in density, or from extension of the city's boundaries, is a matter which has some bearing upon plant development. Our first step, however, is to find what is to be the city's rate of growth. Since the percentage increase from 1910 to 1920 is less than that of the previous decade, it is possible that the rate of increase will slacken still more during the next decade.

Age distribution of the population. Age distribution of the population is an important index to building needs, since there is a wide variety among cities as to the percentage of the total population belonging to the school-age group. These differences are due in part to differences in the legal school-age limits in the different States, and in part to

actual differences in the age distributions of the people in different cities. The legal school age in one State may be five to twenty-one years, in another five to fifteen years, in another eight to eighteen years, and so on in wide variety.[1] According to the 1920 Census Report, 58.1 per cent of the children seven to twenty years of age in Akron, Ohio, were attending school, while for this same age group in Spokane, Washington, 77.1 per cent were attending. The 1920 Census Report similarly showed that 12.9 per cent of the population in San Francisco belonged to the age group five to fourteen years, while for Scranton, Pennsylvania, the corresponding figure was 21.6 per cent. For this reason a certain percentage increase in total population may mean more or less than a like increase in school population. Alongside of total-population figures, therefore, must be placed age-group figures, running through a period of years.

School population. The population study which most directly affects the building program is that covering the actual school population. As school enrollment and attendance statistics are always easily available in school records, it is possible, by placing them beside the figures for total population and for certain age groups, to estimate with reasonable accuracy the rate of growth of the school population.

In addition to these items it is well to know what part of the total school population will have to be cared for in the public schools. In some cities very large percentages of children are cared for in parochial and private schools. These percentages may not be constant for many years in succession, yet unquestionably they furnish a further valuable index to actual building needs. Such data could be added to Table XX, or arranged as in Table XXI, which shows,

[1] See *Report of the United States Commissioner of Education*, for 1918–20, p. 126.

for Kalamazoo, Michigan, through a five-year period, the growth in school census children five to twenty years of age, the number of these enrolled in public and private schools, and the number in average daily attendance in public schools. The latter figure is not as useful as the figure showing number belonging, where such a figure can be obtained. Where school statistics have been properly kept this type of study is easily made, and will be of great value in revealing the rate of growth.[1]

TABLE XXI. SHOWING FOR KALAMAZOO, MICHIGAN, FOR A PERIOD OF YEARS, THE NUMBER OF SCHOOL CENSUS CHILDREN, THE NUMBER ENROLLED IN PUBLIC AND IN PRIVATE SCHOOLS, AND THE NUMBER IN AVERAGE DAILY ATTENDANCE [2]

YEAR	TOTAL CENSUS CHILDREN AGE 5–20	NO. OF PUPILS ENROLLED IN:		AVERAGE DAILY ATTENDANCE PUBLIC SCHOOLS
		PUBLIC SCHOOLS	PRIVATE AND PAROCHIAL SCHOOLS	
1918.....	10,992	8,205	1,300	6,385
1914.....	9,793	7,050	1,050	5,426
1913.....	9,846	6,860	1,300	5,174
1912.....	9,310	6,547	1,000	4,893
1911.....	9,276	6,060	1,450	4,982
1910.....	9,073	4,420	500	4,781

Distribution and density of population groups. There is a wide range in sizes of school buildings, and no scientific study of the efficiency of the various sizes has as yet been published. In general, we know that the small building is less satisfactory than the large one, and that large buildings

[1] Figures taken from *Reports of United States Commissioner of Education*, of corresponding dates.

[2] For a good graphic representation of such facts, see Cubberley, E. P.: *School Organization and Administration*, p. 59. Boston, Houghton Mifflin Company.

are more satisfactorily administered, but what is the best size has not as yet been very definitely determined. When a district has outgrown its building it may add a few rooms, or build a new building with a few extra rooms to care for the expansion of the next few years. This procedure, rather than scientific planning, has been the one usually followed.

As buildings have to be replaced and expansion has to be cared for, a more scientific procedure should be followed. This calls for a study of the distribution of the population — distribution, not merely as to density but also as to social groups, as to the industrial geography of the city, and as to attendance barriers. A stream of water or a heavy line of traffic with busy crossings ought if possible to be made the boundaries between attendance districts, otherwise provision for transportation or for the supervision of crossings will be necessary. Old and original district lines and ward lines should not be held as sacred when the building program is being worked out. Buildings should be placed with respect to the most genuine dividing lines between population groups containing enough children to make a school of two hundred and fifty or more pupils, unless serious attendance barriers interfere.

To get at the facts a map of the city should be made on which is shown all the serious attendance barriers, such as streams, railroads, heavy traffic lanes, high hills, industrial or commercial centers, and parks. The areas thus bounded should then be studied as to school population, and as to social and racial groups. From the school attendance figures or from population figures for wards the facts can be obtained. Within these limitations density of population and the availability of sites are likely to indicate very clearly the possible locations and sizes of buildings. Where such factors dictate a small building, then the cost of caring

for attendance over some barrier, or the difficulty of an undesirable mixing of social groups, should be weighted against the high cost of small-group organizations.

When one has assembled such facts for a series of years for elementary, high-school, and special school population groups, the lines of future expansion can usually be detected and future growth may be taken care of in the building plans.

Educational objectives and the building plan. Population studies will furnish the basis for determining the number, size, and placement of buildings. They will also aid in determining the educational objectives which are to guide in determining the kinds of buildings to be erected. Once the objectives are clearly conceived, and the plan of organization and the general character of the curriculum decided upon, it is then possible to work out the types of buildings needed.

For details as to how to deal with the study of the curriculum, see Chapter IX. Here it is enough to say that the facts there treated are essential at this point before we can decide the details of any building. Are we to have a special junior high-school curriculum; is the building to be used for community programs or for night schools; are physical training, dramatics, music, and shop work to be given prominence in a rotating program? These and other questions enter into the settlement of the problem, and for that reason a clear statement of educational objectives is essential as part of this feature of the survey, which is to set forth the city's need for buildings and grounds.

3. Present efficiency of the school plant

Functional approach. When we have before us a clear analysis of the city's needs for buildings, we are then in a position to study the efficiency of its present plant in the light of what a modern school system calls for. As we have

thus far been seeking the proper functions of a school plant we now ask: Are the functions brought to light by our studies now being met, or to what extent are they being met, by the present plant?

Beauty, durability, safety, comfort, convenience, commodiousness — all are ends to be met. What kind of beauty, how durable, convenient for exactly what type of school program, commodious in just what ways — these are questions to be settled. This inquiry must first know what educational aims and programs are being carried out before judging of the efficiency of the buildings. Durability and convenience are not general but special ends, which we must first define. Many buildings have too great durability, as compared with their flexibility. They were designed with respect to aims, methods, and organization that are no longer satisfactory, and, since to change them is costly and difficult, we may say they are too durable.

While judging the efficiency of any building with respect to the ends it is trying to serve is our first step, our second step must raise the question as to whether the ends being served are themselves satisfactory. A building might be well suited for a given program, but the program itself may be far from what is needed. In such a case the building, however beautiful, durable, convenient, and commodious is a positive hindrance to educational development and cannot be called efficient.

A study of buildings and grounds, therefore, must turn to studies of organization (Chapter III), the curriculum (Chapter IX), the daily program (Chapter XI), and the plan of grading and promotion (Chapter VIII), as well as to the above study of plant needs, if the surveyor is to give a mature and critical judgment as to the present efficiency of the school plant.

The main aspects of the inquiry. A survey must deal

with a building program, and not merely with buildings and grounds. We must know whether a city has enough building and play space to provide adequately for all its children and for such adult education as the city should offer. We must know whether these provisions are distributed with respect to the centers of population, attendance barriers, and tendencies to growth and decline in population centers. We must know whether the city has followed sound financial methods. We must know the expected life of the plant as it stands. We must know the extent to which, and the means by which, the city is working according to a real scientific plan. Finally, we must know to what extent the present facilities are adjusted to modern aims, methods, organization, and curricula.

Leaving the financial question to the next section of this chapter, and the question of information and records to Chapter VII, how are we to define a city's efficiency in the above aspects?

Adequacy of school plant. There are certain easily visible evidences of inadequacy, such as half-day sessions, narrow curricula, shortened courses, and over-crowded classrooms and playgrounds. These can be discovered and defined with little difficulty. A tabular statement, by schools or by wards, of the number and the percentage of pupils attending half-day sessions, seated in corridors or rooms not originally intended for instruction, provided with narrow and formal curricula, taking courses that meet less than the usual number of periods per week, and working in groups above a reasonable standard in size, will furnish a clear statement of the facts.

Whether the best possible use is being made of the facilities available is also a question which must not be ignored. As pointed out above, information on this point will be brought to light in other aspects of the survey, but such informa-

tion must be brought to bear at this point of the plant survey.

Distribution of plant facilities. The main questions here are: Are all parts of the city — for example, all population groups — equally well provided for? Has the growth of the plant kept pace with needs, and has it gone forward with reference to the character of those needs? Are some children provided with palatial and others with hovel-like school homes? Are there several small buildings where there should be one large one? Any general unevenness of provision can be found and described, and explanation of it can then be sought.

The expected life of the school plant. The expected life of a building is roughly, though not fully, indicated by its age. A distribution of buildings by ages may be made, and comparison with other cities worked out. The percentage of all buildings belonging to the various age groups, and the percentage of all pupils attending school in each group, will furnish certain important facts.[1]

Such facts, however, must not be taken as final proof of worth. A building that has an expectancy of ten years may be a new building, designed with reference to needs which it is anticipated will disappear in a decade. On the other hand, it might be a very old building, which, due to the flexibility of its internal structure, has been kept fully up to the changing needs of the school. Hence the final test is: Is the building functioning satisfactorily, and for how long will it continue to serve?

Relation of school plant to aims, organization, methods, and curricula. The size and character of a school building should not determine, but, in no small part should be determined by, the school's aims, methods, curriculum, and or-

[1] See *St. Paul Survey Report*, p. 53 ff.; also *Baltimore School Survey Report*, vol. 1, p. 56 ff.

ganization. Many of our cities have ineffective and costly systems of administration because of the past policy of erecting small buildings, and an uneven distribution of sizes of class groups has resulted from the same cause.

The size of school building has increased materially in recent years, due in part to the fact that the original cost is relatively less, but largely to the possibility of increased economy in administration, equipment, and teaching costs in larger buildings. The large building makes possible the economical use of special rooms, a more constant use of certain parts of equipment, and a finer adjustment of grading and promotion plans. Yet we have not standardized buildings as to size, and owing to the rapid changes that are going on in curriculum-building, in teaching and supervisory methods, and in pupil organization, it is doubtful if the size of buildings can ever be completely standardized except with respect to standardized curricula. Yet we know, in general, that the large building is more flexible in these lines of adjustment than is the small one.

Our study, then, must examine all these adjustments, and find out where they are good and where they are poor. The location of a building touches very intimately the questions of attendance, health, moral and æsthetic instruction, and community life. We must study location, then, with respect to these functions. The size of the building touches intimately the question of size and rate of increase in attendance, breadth of the curriculum, classification of children, plan of recitations, questions of staff, the work of supervision and administration, and community-center work. Our study calls, therefore, for a careful examination of just how these questions are affected by the size of the building. The size of classrooms determines the maximum size of teaching groups, and this must be examined to see whether they are closely adjusted to the variety of demands that will be made

where good systems of promotion, classification, and departmental instruction are being carried out.[1]

The score-card method of evaluating the school plant. To carry out such a functional study of a building as this would call for a careful classification of the main and subordinate functions served by the building as a whole, and by each of its separate features. Such a systematic analysis of functions has not been made by any survey as yet, though an abundance of criticism of buildings from this general viewpoint has been made.

Instead of classifying and standardizing the functions to be served by a building, the score cards available, in the main, classify and standardize the different physical features of the buildings. Yet the success with which the score card has been used in survey work[2] shows excellent promise for future study on the technique of such survey tools. Our point of departure, whether by score card or not, must be the function or functions to be performed.

The score card is assumed to embody a large number of standards, in terms of which judgment is to be rendered. The Strayer-Engelhardt score card has grouped the various aspects of the plant under the following five main heads: site, building, service system, classrooms, and special rooms. A perfect building would score 1000 points, of which 125 would be given to site, 165 to building, 280 to service system, 290 to classrooms, and 140 to special rooms. These main heads are each subdivided, and most of the subdivisions are again subdivided, making a total of eighty-eight specific details that are separately scored.

The advantage of such a systematic plan of scrutinizing a

[1] See an article by the writer on "Some Data on the Cost of School Housing"; in *The American School Board Journal* for June, 1924, p. 42 ff.

[2] See the Strayer-Engelhardt score cards, as used in the Atlanta, Baltimore, St. Paul, and other school surveys. Teachers College, Columbia University, New York.

school site is obvious, even if no scoring system were used. The only danger is that scores will tend to be based upon what is seen, and not upon the satisfactoriness with which a school function is being met. That the scoring method is better than no method, though, need not be argued.

On the other hand, when 15 of 1000 points in a perfect plant have been assigned to "fire-proofness," we still have to judge this feature of the building by references to some kind of standard. What is that standard? What is the basis of the scorer's judgment? If a score card does not relieve us of the necessity of examining every feature of a plant with reference, not only to what it has or has not, but with reference to how well it serves its purpose, and if it merely affords us an analysis of the relative importance of each feature of the plant, together with a quantitative scheme for stating our estimate of the same, we still must provide ourselves with the best possible means of forming accurate judgments. That applies, of course, to the use of score cards for any purpose whatever, and the scorer must assume proper responsibility if he is to make intelligent use of such a device in a survey.

Standards for judging a school plant. Of such standards a few have been fairly well established. Some of these are in the form of general principles, while others are exact measures. Principles are more difficult to apply than are objective standards, yet they can be very useful where more exact standards are lacking. A collection of these standards will be found below.

ACCEPTED STANDARDS FOR JUDGING A SCHOOL PLANT

Site:

1. Should be reasonably near the center of population served, but should have regard for attendance barriers and serious distractions.
2. Should be large enough to furnish room for play, landscaping, and light (100 square feet of play space per child in the largest

group that will need the play space at any one time is regarded as a desirable standard).
3. Should be well drained and on loose soil.
4. Should have regard for community beautification.

Building:
1. Size should be adjusted to curriculum needs, school enrollment or "number belonging," and possible expansion of district boundaries or growth in population.
2. Location on site should have reference to classroom light exposures, arrangement of play space, æsthetic appearance, and direction of prevailing winds.
3. Size of entrance, stairways, and corridors should be adjusted to the need for safe and speedy simultaneous exit of all pupils.
4. Heating and ventilating systems should provide for constant temperature of 68°, a humidity of 40 to 60 per cent, and 2000 cubic feet of fresh air per pupil per hour.
5. Fire-proofness should be so complete in all cases as to make the building the best possible risk for underwriters.
6. Toilets should be available on every floor. There should be one toilet seat for each fifteen girls and one for each twenty-five boys, and one urinal for each fifteen boys.

Classrooms:
1. Light area of windows should equal one fifth to one fourth of the floor area, light should enter from pupil's left, and should come from east or west and never from the south.
2. Sunlight should enter every classroom.
3. Cloak rooms should be near the room entrance.
4. Size should furnish 200 cubic feet of air space, and 15 square feet of floor space, per sitting: $24 \times 30 \times 12$ feet is an accepted standard for width, length, and height.

There are rules and standards touching many other details which are not included in this table.[1] Those included suggest the actual terms in which judgment is to be registered on the score card if such a device is used, or in an analysis of the building efficiency if scoring is not undertaken.

During the past decade a very considerable number of laws and regulations affecting the construction of school

[1] See the Strayer-Engelhardt score card, Bureau of Publications, Teachers College, Columbia University, New York. Also see Salt Lake City, St. Paul, Denver, Atlanta, and Baltimore *Survey Reports.*

buildings have been enacted. This means that more and more we are establishing legal standards for the control of school buildings. These standards will tend toward uniformity as facts and experience accumulate, and will furnish us with a building nomenclature and building standards with reference to which a very accurate judgment may be made.[1]

Manipulation of building scores. The manipulation of the scores assigned to buildings and to the separate features of the plant is very simple. An attempt should be made to show as much detail as is necessary to reveal the main facts upon which criticism is based. Buildings should be studied in groups arranged by functions, so that the elementary or the high-school plants may be examined separately. For this a complete distribution of total scores by such groups should first be made. Then a comparison of these figures with those for other cities, first as totals and then by individual items, should follow. This furnishes a general basis of comparison between cities. Beyond this buildings might be ranked by total scores, and by scores on certain given items in as much detail as occasion seems to warrant. It would not be feasible to illustrate all such tables here, nor does the difficulty of the task seem to warrant it.[2]

4. The city's capacity to meet its building needs

Needs must be expressed as cost. With the city's building needs before us, and with the present efficiency of the school plant defined, it is possible to show both the extent and the character of the difference between the needs and the available facilities for meeting those needs. This differ-

[1] See *School Life*, vol. VII, p. 72 (November, 1921), for summary of States having regulations affecting schoolhouse construction, and the items covered by such laws.

[2] The Atlanta, Baltimore, Boise, Philadelphia, and St. Paul *Survey Reports* show almost every possible form for presenting the results of scoring.

ence, expressed in terms of cost, reveals the extent of the problem which the city should try to solve, and brings us to the inquiry into the city's financial capacity to proceed with its building program.

The measure of a city's capacity to build. In Chapter IV the problems of finance and business management were presented. There it was pointed out that, up to a reasonable limit, a city's educational needs should dictate the amount of its expenditures, and that beyond that limit financial capacity must be the guide. How to measure the city's financial capacity was also explained. To avoid unnecessary repetition it may be stated here that amount of taxable wealth, amount of real wealth, size of tax-rate, the income if that can be ascertained, and the amount and character of the indebtedness of the city, all studied with reference to the extent and character of the school needs, and all judged in comparison with like figures for other cities, will be the line of procedure here. It is believed that the above treatment demonstrates clearly enough the best methods of assembling and interpreting the data needed.

It should be kept in mind that when a city is in debt for parks, boulevards, city halls, and municipal light plants, that to that extent its credit is used up. When it has gone into debt for these things and neglected its school plant (illustrations of such cities will readily come to mind), the survey should point this out to the people as bad management. There should be some reasonably equitable basis upon which all community interests should share the use of public funds and public credit.

Looking into the future. Most communities will readily assent to the idea that the building program should look to the problem of future expansion. How can this be done? The rate of growth in population, as revealed by such studies as those above described, will furnish a basis for anticipating

the needs of the years just ahead. Similar studies of wealth will show what funds are in prospect for meeting those needs. If the rate of increase in population is greater than that for wealth, it means that each year the necessary school money will be harder to raise. If the reverse relationship obtains, then each year the burden will become lighter.

This would argue that in the first case a relatively long look ahead is a wise policy, while in the second case a full provision for the present and no extensive provision for the future would be wise. How far to carry this is the question. This may indicate the broad lines of a policy or general guiding principles, yet it does not settle all questions. Rates of interest, costs of labor and materials, condition of other community interests, and especially public sentiment must be weighed by a board in reaching its decision.

Public school financial accounting has paid little attention to cost of depreciation, cost of interest on outlay, and cost of unused space or equipment. Yet these are perfectly real costs that are actually borne by the public treasury. When a building is erected at a cost of half a million dollars, we tend to count that half-million as gone, and as having no bearing upon future management. We should remember that if this money had not been spent it would still be in the hands of individuals, and would be exerting its earning power upon the increase of taxable wealth. The bearing of complete and sound financial accounting need not be argued at length here. It is enough to point out that overhead costs are created in proportion to the size of the building, that depreciation begins on the entire building at once, and continues until the building is useless; and that interest charges on outlay are borne, whether we keep books in the matter or not. It follows that if a building is larger than is needed, or not wisely adjusted to the school program, then money is being wasted.

Two suggestions come out of such reasoning. First, it is better, other things being equal, to plan for the future but to build for the present, adding in terms of the plan as additions are needed. Second, it is wise to anticipate the curriculum demands as far as possible in the future, in order that remodeling may be possible and relatively inexpensive.

5. *The constructive proposals of the survey*

Negative criticism. Here, as at all points in a survey, the plain truth as to conditions should be clearly stated. If buildings are poor the report should say so, and it should show exactly where and how they are poor. It may be because they are inadequate in extent; that they are unsafe or unhygienic; that they are ill-adapted to a modern curriculum; that they are wrongly located with respect to population units; that in size they compel an expensive plan of administration and supervision; or that they may have been badly financed. Whatever the cause the facts should be clearly presented, the writer remembering that his function is to inform and not to reprimand.

A reasonable interpretation of these facts will explain what such inadequacies mean to the children and to the taxpayer. It will show *how* teaching and administration are interfered with, *how* certain subjects cannot be introduced, *how* health is being impaired, *how* fire risks are being borne and, as far as possible, *what kind* of financial waste is involved.

The proposed program. Beyond the negative criticism must be set up the reasonable needs and a plan by which the city may proceed in the future. In this the first step is to show the type of program with reference to which expansion must take place; second, the extent of the expansion; third, distribution of the program through the decade ahead; and, finally, how to finance the project.

The facts for both negative and positive criticism will

have been revealed by the plan of study set forth through this chapter. Here they must be brought to bear upon the specific "next steps" for the city to take. Lengthy argument is not called for, but careful analysis and interpretation of facts are highly necessary because it is the point in the survey at which the largest financial demands are to be made.

QUESTIONS FOR CLASS DISCUSSION

1. By what criteria would you determine the fitness of the location of a school building? Could these criteria be combined into a score card or other measuring instrument?
2. How would you determine the present and near-future school building needs of a city school system? How was this determined in Eureka, California? (See *A School Building Survey and Schoolhousing Program for Eureka*, by Hart, Frank W., and Peterson, L. H.)
3. How would you estimate the probable school population for ten years in advance? How are such estimates made by the United States Census Bureau? (See *Financial Statistics of Cities*, United States Census Bureau.)
4. What has the rate of depreciation to do with building costs, and how could you determine depreciation rate?
5. What high-school and what elementary-school courses require special building facilities?
6. To what extent could one hope to keep the seating capacity of a school plant at exactly the right size, so that all children could have seats and have no seats unused?
7. In what way is the equipment of laboratories connected with the cost of buildings?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Study the leading city survey reports with respect to the following:
   a. Relative amount of constructive, as opposed to negative criticism of school buildings.
   b. Is there an adequate presentation of the factual basis upon which these criticisms rest?
   c. What percentage of the total report is devoted to the topic of buildings?
   d. Was a score card used, and did the discussion of scores bring out the standard by which scores were registered?
   e. In how many reports were the buildings found to be seriously

inadequate in: extent, size, location, adaptability to curriculum and administration, in the matter of hygiene and safety?

f. In how many reports were population and finance studies, such as those above suggested, carried out?

2. Let each member of the class, working independently, score a building by use of a score card, and then work out the median score on each item and show the distribution of scores about that median.
3. In a similar manner, apply the above list of principles and standards in measuring the efficiency of a school plant, and compare results.
4. Has any data been presented by survey reports showing, for every room in a city's plant: the number of sittings provided, the amount of floor space per sitting, the percentage of total school time during which the room as a whole is in use, and the extent to which every seat is used 100 per cent of the time?

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CHAPTER VI

THE INSTRUCTIONAL STAFF

1. Statement of the problem

Two main issues. In the survey of the staff there are two aspects, or two main groups of problems, that must be studied separately. First, are the plans of organization and management and the rules of procedure so drawn as to make possible the development of an efficient staff? Second, is the staff efficient? If a superintendent is hedged about by a bad set of rules governing appointment, tenure, salary, promotion, training in service, and assignment, we can scarcely expect to find an efficient staff. On the other hand, when these rules are drawn in terms of sound administrative principles an efficient staff is to be expected.

This first step in the study of the staff is not only logical and orderly, in that it recognizes the first broad separation of functions, but by such a division of the problem it will be possible for the surveyor to place responsibility for success or failure precisely where it belongs, and then to prescribe remedies that go beyond mere symptoms to real causes.[1]

The machinery for developing a staff. The first of these two problems has to do with the following items:

1. State laws affecting size of staff, certification, tenure, salary schedule, and pensions and insurance.
2. Board of education enactments, determining the placement of

[1] Somewhat more detail is presented in this chapter than is true of most chapters. The reason is that the staff is the most vital part of the school system; it represents by far the largest item in the school budget; and the problem of building up a strong staff is the largest and most complicated problem a young superintendent faces.

responsibility for the administration of State laws and board rules affecting the development and maintenance of a staff.
3. The rules and regulations of the board governing these same matters.
4. The system of records and reports essential to the execution of the plans.
5. How effective these policies are in practice.

The efficiency of the staff. The second of the two main problems is concerned with the efficiency of the product which the above machinery has turned out. How efficient is the staff as it stands? This may be judged in three ways:

1. By facts about the individuals composing the staff.
2. By facts about the way in which the staff is organized and working.
3. By the actual classroom results obtained by the instruction.

A further detailed analysis of these two main aspects of the staff problem; explanation of what facts are to be assembled; illustrations of how to classify and interpret these facts; and what principles and standards to use in judging the efficiency of this part of the school policy, together with the results it produces — will be the further purpose of this chapter.

I. Machinery for Development of a Staff

1. State laws and State regulations

State's limits to board control. City boards of education must work within the limits set by the laws of the State, and a survey must locate those limits here, as well as in other board functions. Almost every State exercises some control over certification, though States usually do not prohibit the enactment by a city of special rules governing certification requirements, over and above the state requirements. State requirements set the general standard of preparation

for the entire group of teachers in the State from which the city must select its staff, and, unless the supply exceeds the demand, a city will not be able to escape the depressing effect of low standards.

The same thing is true of State tenure laws, minimum salary laws, pension and old-age insurance and disability laws, as well as of laws which indirectly affect the size of the staff through the apportionment of State funds. Consequently, the first step is a study of all such provisions. What are the provisions, and exactly what limitations or what support do they offer to those who are responsible for formulating and carrying out the local school policy touching the development of a staff.

How to study these provisions. The State school laws, together with regulations adopted by the State school administrative authorities, will furnish the facts. These the surveyor must examine carefully to see how they affect the city system in question.

To illustrate, let us take a State tenure law which requires that, after a teacher has served two years, her tenure becomes permanent, and that removal from her position can then be effected only by formal proceedings before the board. Suppose, further, that the teacher can appeal to the State board of education, which may be a political body, and finally to the courts. What would be the effect of such a tenure law? Obviously, it would mean permanent tenure almost without condition, for no superintendent would risk the outcome of such procedure, since it would place him, rather than the teacher, on trial.

In the further study of the city's staff allowance must be made for the effect of this law, since under such conditions it would be difficult if not impossible to develop a high-grade staff. What is the surveyor to do? He cannot change the law, though in his report he can inform the public as to

what the law means, how it is affecting the city's schools adversely, and as far as possible point out the kind of safeguards which the board and superintendent can best make.

This will call for a summary of the best State tenure laws, and for a clear enunciation of the principles which should be embodied in a tenure law. There is general agreement among educators that the question of tenure is inseparable from questions of appointment, dismissal, and professional growth while in service, and to some extent certification and salary schedules. A tenure law such as the one above described virtually destroys a board's power of dismissal, and leaves it but little recourse in the case of a teacher who is lazy and unprogressive.[1]

It is hardly worth while to summarize here the legislation on teacher tenure. The movement is in its infancy as yet, and all the laws are likely to undergo revision as experience accumulates. The Massachusetts law carefully safeguards the board's power of dismissal, and yet effectively insures tenure. The New York and California laws do the latter very well, but are not so strong in the former.

Other school laws of the State are less likely to represent direct obstructions to a local city board, though they should be examined. This brief sample will suffice to illustrate the method of study.

2. The board's machinery for developing a staff

Organization must be in terms of functions. In a similar way we may examine the machinery which the city has devised for the creation of a school staff. Who is responsible for building up the staff, and how is the staff organized?

[1] See Almack, J. C.: "The Problem of Teacher Tenure"; in *American School Board Journal*, p. 299. (November, 1921.) Also see *The Portland Survey*, chap. IV.

The functions in question are: selection, appointment, assignment, transfer, determination of salary, promotion, training in service, insurance, pensioning, dismissal, and control of conditions under which the staff must work. Some person or organization of persons must be responsible for each of these functions. Reference to Figure 4, page 68 — that is, to a description of the general plan of organization — does not give us these details. For these we must turn to the rules and regulations of the board of education and to what we find in actual practice. Frequently no written assignment of these functions exists. A practice has been built up, however, and the locus of authority can usually be found. This the survey will examine in the light of accepted principles.[1]

Standards to be used in measuring efficiency of machinery. It is believed that the following principles of organization and administration touching these matters now obtain in our most efficient city school systems:

1. The superintendent of schools, as executive head of the school system, must be the main center of authority in each one of these functions.
2. In this capacity he should be responsible for seeing to it that there is formulated a definite policy which places authority, and indicates the essential lines of procedure in carrying out each function.
3. Selection of teachers should rest solely with the superintendent.
4. The final approval for appointment of teachers should rest with the board of education, except in temporary and emergency cases, when it should be left to the superintendent.
5. Assignment of duties to teachers should rest with the superintendent.
6. Determination of salary should rest with the superintendent,

[1] See Morrison, John Cayce: *The Legal Status of the City Superintendent* (Warwick & York, Baltimore, 1922), for a good summary of board regulations on this point.

but be governed by a carefully drawn policy or salary schedule adopted by the board.

7. Promotion should be with reference to a policy adopted by the board, but administered by the superintendent.
8. Training in service should be directed by the superintendent as part of the tenure, promotion, and salary policy.
9. Pension and insurance policies should be adopted by the board. Applications for either should be passed upon by the board.
10. The control of working conditions must be in the hands of the superintendent, as the administrative head of the schools.

Weak points to look for. In many cases there is a board of education committee on teachers which holds much of the authority here assigned to the superintendent. Another common weakness is in division, under two or more heads, of the main administrative authority which controls working conditions. Where politics or general lack of coöperation between board and superintendent prevails there is often a lack of real placement of control. These and other violations of these principles ought to be looked for as the machinery controlling the development of the staff is being studied.

3. Principles governing the operation of the machinery

The staff policy. Once the machinery for developing a staff has been examined, and the locus of authority and responsibility has been established, the next step is a study of the policy in terms of which this machinery is working. How do they proceed in building up a staff? How do they select, appoint, assign, transfer, promote, train, pay, dismiss, pension, and care for the members of the staff? Here we are concerned with policy, and with the rules, plans, and schedules by which work is carried on. What rules govern the superintendent in the work of selection, promotion, and dismissal of teachers?

1. Rules governing selection. Since the responsibility for

selection belongs with the superintendent, it is his duty to work out a plan which will meet the particular needs of the city in question. If a full statement of the plan is not in print, then such a statement should be requested of the superintendent.

Such a plan will cover the items of general mentality, training, experience, character, personality, physique, age, sex, race, and nationality. In respect to each of these the superintendent should not only have a systematic plan for gathering, classifying, and filing information about candidates, but he also should have fairly definite standards with reference to which final choice is to be made. Finally, in addition to information and standards, there must be a practical method for using the information and applying the standards. What the survey is to look for then is a rating scheme, and the plan of its operation when used as a basis for judging candidates.

In these matters we have wide variations in practice. Obviously no single standard in any one of these items, or no single combination, will serve all cities alike. The survey must judge the salary schedule in the light of the city's capacity to support schools, and in the light of other conditions that operate to force down the standards which are to be applied in the selection of teachers. The only test of these standards is whether they bring to the schools and retain as good a staff as the city is competent to support.

Instead of presenting here a standard rating scheme as a basis for measuring this feature of the superintendent's policy, we must be content with a statement of certain guiding principles, as follows:

1. Training and experience should vary in kind and amount to suit the position in question, but should be as high as is consistent with the best compensation the city can offer.

2. General intelligence should be at least normal.[1]
3. Personality should be judged as suitable to school work.
4. A strong physique should be counted an asset, and serious illness, such as incipient tuberculosis, or serious disfigurements, should eliminate a candidate regardless of fitness otherwise.
5. Age has a bearing on success and upon length of service and pension responsibilities, and should be weighted accordingly.
6. Sex requirements should be based on the type of position.
7. In general, American rather than foreign-born teachers should be selected, with certain possible exceptions for high-school work.

2. Rules governing appointment. When the superintendent has selected a list of candidates the list should be presented to the board, with recommendation for action. The board should approve or disapprove, and give the superintendent its reasons for any disapproval. It is doubtful whether a more efficient plan than this can be devised. The policy in use may therefore be judged by reference to this principle.

3. Rules governing assignments and transfers. The information which the superintendent uses in making appointments should furnish the basis of assignment. Transfers must be made with reference to many kinds of situations for which it would be difficult to set up definite standards. The number of such transfers, the reasons for them, and the effect might be a detail, but if so it is an important one.

4. Rules governing salaries and promotions. There should be a definite salary schedule arranged with reference to the various groups of workers in the schools. A good salary

[1] We do not know the correlation between amounts of intelligence and amounts of success in teaching the different subjects and grades, but it is at least reasonable to think that the correlation is positive until we have obtained facts to the contrary. See Knight, F. B.: *Qualities Related to Success in Elementary School Teaching.* Teachers College Contributions to Education no. 120. New York.

schedule must be so drawn that the character of the function to be performed, and the quality of service to be rendered by the teacher responsible for that function, will be included among the determining factors. Less training is necessary for third-grade than for high school teaching. Because of this difference in the two positions a difference in salary should be provided.[1] Rules governing selection and appointment should see that the high school candidate has the superior training. The salary schedule should recognize the value of that training.

Since difference in training and equipment necessary for different positions can be determined roughly, that part of a salary schedule can easily be worked out, and the same is true of experience. It is as yet difficult to measure success in teaching, hence the adjustment of a salary schedule to merit or success is much more difficult.[2] If amounts of success are difficult to determine, some of the factors that account for success are not so difficult. Tangible results of study can be obtained, and whether state reading circle laws provide for professional study or not, a city should recognize its value and the salary schedule should reward it.[3]

5. Rules governing pensions and insurance. Pensions and insurance for teachers can be used effectively in building up a staff. Usually such schemes are state rather than local in their scope, though local boards may have something to do with their administration, and sometimes also have to do with their support. As a pension is deferred pay for service

[1] At present this difference usually receives too much recognition.

[2] That success in teaching can be measured and, within limitations, predicted in advance, is almost surely possible. When this has been made practicable, then salary schedules must be adjusted to recognize merit. For a statement of the problem of measurement, see the author's "Measurement of Teaching Efficiency"; in *Journal of Educational Research*, vol. IV, pp. 81–94. (September, 1921.)

[3] See Cubberley, E. P.: *The Portland Survey*, p. 81 ff. See also his *Public School Administration*, chap. XVI.

it usually is given only with reference to length of service in the city.

6. Rules governing dismissal. Teachers are employed to render service. When they cease to render service, or when they are personally detrimental to service, they should be dismissed. How to define the basis of dismissal is difficult. If the rule says a teacher shall be dismissed for inefficiency, then the question of how much inefficiency arises; if for insubordination, then how much insubordination; if for immorality, then how much immorality.[1]

7. Rules governing tenure. Connected with dismissal is the rule governing tenure. The best principles here call for a period of probation, followed by permanent tenure. The probation period is an opportunity for the teacher to demonstrate fitness. Once fitness has been demonstrated, tenure should be guaranteed to the teacher, who, in turn, should guarantee to the school authorities that she will maintain a good degree of efficiency. Any contract in which only one party makes a guarantee to deliver is a contract which asks one party to take all the risk and is unjust.

8. Conditions of work. The conditions under which teachers have to work will be a factor in building up a staff. If conditions are hard and unpleasant, good teachers will shun the system. Crowded classrooms, long work hours, poor buildings and equipment, and incompetent administration and supervision all tend to lower the morale of a staff, and so the attractiveness of a school system.

The point here is this: A city should look upon the development of a staff as a positive constructive program, and, by applying the above principles and suggestions, a survey

[1] It seems that the only way to get definitions of inefficiency, insubordination, and immorality is to build up precedents from cases that have been tried and decided. Dismissal should not be too easy or too difficult, as in either case abuse is inevitable.

should be able to find tangible evidence that the matter is or is not so considered.

4. Records and reports essential to development of staff

Importance of good system of records. Good state school laws, a good local machinery or organization, and good working principles will be effective in building up a staff only when a careful system of records is employed. The necessary information about candidates, about the size and distribution of a staff, about length of service, and about the success of workers cannot be carried in any superintendent's head. A well-balanced staff can be built up only if one is able to get before him a complete picture of his staff and of how it is growing, and this can be had only if careful records are kept. The picture must not only be a cross section, but must reveal tendencies as well.

The World War very quickly brought to light the great importance of personnel information. Business firms to-day are keeping records and compiling information from which they are able to see all the possible economies connected with the employment of workers. The sources from which they draw their workers, what it costs to tap other sources, the possibility of training workers for the higher positions, the success of their workers, and the annual turnover are facts of greatest importance in conducting war, business, or education.

Kinds of records needed. The kinds of records needed will be discussed in Chapter VII. Here let us point out briefly what the superintendent, or the board, or other properly interested person may want to know. Obviously, a superintendent would want to know:

1. Who the applicant is. This calls for information on all points that affect the efficiency of the worker, such as training, experience, and health.

2. He would want information on the number of workers of various classes, their growth and success, their length of service, and the years of service yet available. From such records innumerable studies could be made which would give one complete pictures of the staff, from whatever angle desired.

A complete survey of a staff will look for these records, and for the effect they seem to have had in keeping a stable, well-balanced, and effective staff. If the staff is, on the average, too old or too poorly trained, if it contains too large a percentage of local talent or of foreign teachers, if the annual turnover is relatively large, if the instruction is poor, if teachers are unhappy in their work — then this is evidence that these records did not affect selection, assignment, tenure, promotion, salary, and organization as they should have done.

Here, as at so many points in a survey, or in the administration of a school system, one cannot define the exact extent of efficiency or lack of efficiency. An exact measure of amount is not necessary, however, in order to render a sound decision as to the worth of such a set of records as is here suggested.

5. Effect of these principles and plans on practice

Execution the test of plans. The building-up of a good set of board rules and plans and principles of operation will be of little avail if the administration disregards them. It is not infrequent that one finds very good rules and regulations and very good organization, all made ineffective by poor administration. Throughout this book emphasis is being laid upon the relation that must exist between functions and machinery, and between machinery and administrative procedure. No rule, regulation, record, principle, or item of machinery should be developed — and paid for — that does not aid in the management of the schools.

How to apply the test. If the administration has been carried on with a careful regard to these laws and rules and plans, then a good salary schedule, good tenure, good organization, suitable provision for training in service, and a good staff will almost certainly be the result. If these are not in evidence, then obviously there are special problems to be dealt with. Clues to these special problems will hardly escape notice, if one has followed the above plan in the survey up to this point.

Our inquiry here is two-sided. We must measure the salaries, tenure, teaching load, size of the staff, and amount of training in service that is provided. These are tangible expressions and measures of the character of the provisions which the city has made for building up a staff. The other side of our inquiry must measure the staff as to quality and effectiveness of service. This latter is the second of our two main problems, and will be treated in Section II of this chapter.

The measure of tenure. Good tenure rules, properly administered, should result in long tenure. What the best tenure is we cannot say in absolute terms. Length of tenure in a staff will be influenced by the number of dismissals, resignations, and retirements, and by the ages of new appointees. Facts touching each of these items should be assembled, by years, to see whether the tendency is toward longer or shorter tenure. Once these facts are tabulated, so that the amount of change due to each is in evidence, we may then ask: What of this turnover was desirable, and what of it was undesirable?

For a moment assume that a city shows what roughly seems to be a large turnover, and that most of it is due to dismissals. This would seem to be a reflection upon the judgment of the one making appointments, upon the means used in making them, or upon such limitations as low sal-

aries and poor working conditions within which selection had to be made. Or, suppose that most of the turnover was due to resignations. This would mean that the machinery for the selection of candidates was working well, but that the schools had too low a holding power. Better salaries or working conditions elsewhere are attracting members of the staff whom the city ought not to lose. Again, suppose a large part of the turnover was caused by retirements. This would mean that too little care had been taken to select enough young teachers to keep the average age of the staff low.

How to assemble data on tenure. Since we have no absolute basis for saying what is a satisfactory turnover in staff, or what is a satisfactory holding power of a school system, the best basis of measure is to compare cities of equal size. The data necessary for such a study are suggested by Forms 1 and 2, following. To be comparable for this study, cities need only to be similar in size. If in cities of similar size we find differences in tenure or holding power, then we should examine the salary schedules and working conditions in the cities to determine the causes for the differences found.

FORM 1. FORM FOR COMPARATIVE DATA ON CHANGES IN STAFF

NAME OF CITY	TOTAL NO. ON STAFF	NO. ADDED DURING YEAR			NO. LEAVING STAFF			
		Returned from leave of absence	New appointments	Total Additions	Resignations	Dismissals	Retirements	Total Leaving Staff
City A								
City B								
City Y								
Median								

Note: Part-time service should be expressed as a fraction of full service and added as such. The assembly might well be made separately for elementary and secondary teachers, or for teachers, supervisors, administrators, and clerical help.

Form 2. Form for Comparative Data on Expectancy of Service

Name of City	Average Age of Staff											Average Years of Expected Service before Retirement Age										
	Supervisors		Principals				Teachers					Supervisors		Principals				Teachers				
	Reg.	Spec.	El.	Jr. H.	Sr. H.	Jr. C.	El.	Jr. H.	Sr. H.	Jr. C.	Spec.	Reg.	Spec.	El.	Jr. H.	Sr. H.	Jr. C.	El.	Jr. H.	Sr. H.	Jr. C.	Spec.
City A																						
City B																						
City Y																						

Note: In addition to this a table showing average length of service of all members of the staff in the city to date would be desirable. Also a distribution table of the expectancy of service would be instructive and valuable for a superintendent even if it were more detail than necessary in a survey.

From these two assemblies of data comparisons can be made on numerous points, and by various groups. The explanation of such data is so simple that illustration of how to interpret it seems unnecessary. If the average enrollment of pupils is about equal, in twenty-five cities, we may reasonably expect that they will be alike in size of staff and therefore in amount of turnover. There are likely to be differences in the sizes of the various groups of workers, however, and therefore comparison will be much easier if the figures of the first table are expressed in percentages. A city's rank would indicate its position and so furnish a fair basis for a judgment of efficiency.

If we find the average age of a given group of teachers in one city lower than that of a similar group in another city, we may argue that the first city probably has an advantage. The amount of advantage appears in the figures which show the amount of service yet possible before the retirement age is reached. Too much youth would of course indicate immaturity and inexperience.

How to study salaries. The same plan of comparative study must be applied in the survey of salaries. Schedules must be compared, and actual distributions of teachers with respect to amounts of salary must be made. Various tables of facts may be compiled showing tendencies, through a period of years, as well as cross-section views of the practice in a group of cities.

1. Salary schedules. Table XXII illustrates a method of studying schedules and tendencies in schedules. This plan could be expanded to include elementary, junior-high, senior-high, and junior-college groups, as desired.

2. Actual salaries paid. Form 3 illustrates a method of presenting comparative data on salaries actually paid. Distributions such as this could be made of each separate group, as, elementary-school principals, high-school prin-

TABLE XXII. COMPARISON OF SALARY SCHEDULES IN WESTERN CITIES FOR YEAR 1919-20, AND SHOWING PERCENTAGE INCREASE IN LAST FOUR YEARS

City (Elementary Schools)	Teachers				Principals				Superintendent	
	Min.	Max.	Per cent increase in last 4 yrs.		Min.	Max.	Per cent increase in last 4 yrs.		Salary	Per cent increase in last 4 years
			Min.	Max.			Min.	Max.		
Reno, Nev.	$900	$1200	16.6	33.3	$1300	$1500	30.0	15.3	$4000	21.2
Albuquerque, N.M.	1200	1400	43.3	47.3	2400			47.9	3750	92.0
(15 cities in all).....										
Average....	$945	$1249	32.0	35.5	$1428	$1785	26.6	22.0	$3522	19.3

FORM 3. FORM FOR DISTRIBUTION OF HIGH-SCHOOL SALARIES IN 25 CITIES

Name of City	Number of Teachers in Each of the Following Salary Groups												
	$1000–1099	1100–1199	1200–1299	1300–1399	1400–1499	1500–1599	1600–1699	1700–1799	1800–1899	1900–1999	2000–2099	2100–2199	2200–2299
City A													
City B													
City Y													
Median													

cipals, general supervisors, special supervisors, junior high school teachers, and so on, in whatever detail necessary to make just comparisons.

3. Income of teachers and of other workers. Another check on the adequacy of teachers' salaries in a city may be made by comparing the incomes of teachers with those of other

workers in the same city. Data for this can be obtained from Government Labor Bureau reports, and arranged as in Form 4. By this means the teacher's income can be compared with that of skilled trades' workers in the local community, and these in comparison with similar figures elsewhere should throw valuable light on the salary situation.

FORM 4. ANNUAL INCOMES OF SKILLED WORKERS AND OF TEACHERS

WORKERS	CITY BEING SURVEYED		CITY A	CITY B	CITY D	CITY E
	Rank among cities	Income				
Bricklayers						
Carpenters						
Molders						
Machinists						
Painters						
Plasterers						
Plumbers						
Teachers						

In all these studies one may arrange the figures in very many ways, as by age groups, experience groups, sex, school grades or subjects, amount of training, or by any other group desired.[1] By reference to column two of the table it is possible to see at a glance the position occupied by the city under study.

How to measure the teaching load. Tenure and salary may be very good in a city and yet, because of heavy teach-

[1] Another angle from which the salary problem may be studied is that of the economic responsibilities and other sources of income of teachers. See Judd, Chas. H.: *Survey of the St. Louis Public Schools*, part I, p. 89 ff.

ing load, the city may experience difficulty in holding its teachers. Under teaching load we should include non-teaching as well as teaching duties. If a teacher teaches six periods and supervises study for two periods, the load is not six hours but eight hours per day. This load should be examined from two angles. First, the extent of the load in hours of service rendered, and second, the character or difficulty of the service. A short day with large classes in overcrowded rooms may be a heavier load than a much longer day with small classes in comfortable rooms. Also, a long day in which teaching is broken by rest periods may be a lighter load than a short day with no change from teaching.

To study the teaching load, then, one should collect facts covering both these aspects of the service performed and including extra-curricular as well as teaching service. If the instructional load has been standardized, then a statement of the standards will be sufficient.[1] We all know that studies are not equally difficult to teach, that the school grades are not equally difficult to handle, and that small and large classes are not equally difficult to manage. Only when the teaching load has been adjusted with respect to hours of instruction given, kinds of subjects, school grades or classes, size of classes, and non-instructional duties, can we claim to have standardized the load.[2]

[1] The writer knows of no educational institution, however, in which a thorough standardization of the teaching load has been worked out. Efforts in this line are being made in a few cities, and also in a few universities and teachers' colleges. The University of Washington probably comes nearest to having standardized the teaching load.

[2] We might take American history as a sort of base against which all studies in the high school will be evaluated. Let us say that thirty hours per week of instruction in American history is a standard week. Then express all other studies in terms of this unit. Perhaps the equivalent of this in Latin would be thirty-five hours; in literature, forty hours; in chemistry, twenty-five hours; and so on for other studies. What these values would be we cannot say without some investigation and experiment, but eventually it should be possible to work out these equivalents both for

Until such standards as these have been worked out, Forms 5 and 6 may suggest the kinds of data that will be of most use in this connection. From such tables one can get a fair idea of the amount of work that is being required of the various groups of workers. Other groups could be used in place of or in addition to those suggested by the forms shown here. Also, it would be possible to make some analysis of non-teaching service, and to use some arbitrary method of expressing a given amount of non-instructional as a certain other amount of instructional service. The average loads only are suggested by these forms as a basis of comparison. Of course the variations from these averages are not to be regarded as of no consequence.

How to measure the size of the staff. The size of a staff must be determined not merely by the number of pupils enrolled, or by the organization of the pupils into grades and classes, but also by the character of the curriculum. A city with a narrow, formal curriculum can handle its work with far fewer teachers than can a city of corresponding size but with a quite modern curriculum.

Accordingly the size of the staff does not indicate the size of the teaching load. Neither does a proper distribution of teaching load indicate that the city has as large a staff as it should have. To study the staff such data as is suggested by Forms 7 and 8 should be assembled.

How to measure the training in service provided. To hold and develop a staff, some effort should be made to provide training while in service. The possible forms of such training are numerous. A survey should take account of the

subjects of instruction and for all non-teaching work. The bearing of all this upon salaries and school costs, as well as upon fair division of labor, is obvious. A valuable collection of data on size of class will be found in *Relation of Size of Class to School Efficiency*, Bureau of Educational Research, College of Education, University of Illinois, Bulletin no. 10, 1922.

Form 5. Showing Distribution of Average Teaching Loads in 25 Cities

City	Average Number of Hours per Week Spent on																				
	Instruction in																				Non instructional service
	Grades				Jr. H. S.		Senior High School and Junior College														
	1 to 3		4 to 6		7 to 9		History		Lang. & Lit.		Math.		Science		Music & Draw.		Phys. Train.		Commercial		
	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	No. of Trs.	No. of Hrs.	
City A.....																					
City B.....																					
City Y.....																					
Median.....																					

Form 6. Showing Average Size of Classes in Different Groups for 25 Cities

City	Average Size of Class									
	Grades		Jr. H. S.	High School and Junior College						
	1 to 3	4 to 6	7 to 9	History	Lang & Lit.	Math.	Science	Music & Draw.	Commercial	Physical Training
City A.....										
City B.....										
City Y.....										
Median.....										

kinds and amounts provided, as well as of any tangible evidence of the results.

It is true that the extent to which teachers keep up their training while in service is an index to the efficiency of the teachers. This part of the inquiry belongs in Section II of this chapter. Here our study has to do with the kind and extent of the provisions made by the schools.

FORM 7. SHOWING A DECADE OF GROWTH IN STAFF AND ENROLLMENT

YEAR	NUMBER EMPLOYED										PER CENT INCREASE	AVERAGE ENROLLMENT	PER CENT INCREASE IN ENROLLMENT
	Supervisors		Principals		H.S. Trs.		Grade Trs.		Total				
	M.	W.	M.	W.	M.	W.	M	W.	M.	W.			
1922													
1921													
1912													

FORM 8. PUPILS PER TEACHER, PRINCIPAL, AND SUPERVISOR IN 25 CITIES

CITY	PUPILS IN AVERAGE DAILY ATTENDANCE PER							
	Teacher			Principal			Supervisor	
	El. Sch.	Jr. H.S.	Sr. H.S.	El. Sch.	Jr. H.S.	Sr. H.S.	Regular	Special
City A								
City B								
City Y								
Median								

Many of the provisions made, such as teachers' meetings, participation in administrative work by teachers, and providing the schools with professional books, journals, and occasional addresses, are very common, but in many cases all these are so managed as to yield but little in the way of real training. Reading-circle work well conducted, and connected with salary increases; provision for additional salary for those who attend summer schools and earn college credit; provision for travelling expenses to attend summer school; provision for sabbatical year on part or full salary — these are the important measurable provisions which a city may make.

To measure the worth of the plans in use they must be compared with similar plans in other cities.[1] After all, the real measure of the value of the provisions is the extent to which they are used by the teachers. Table XXIII presents, for five cities, a good sample of the kind of facts to be studied in this connection.

II. Measuring the Efficiency of the Staff

1. Facts about the individuals composing the staff

What is an efficient staff? Thus far we have shown how to find out whether or not a city possesses the necessary machinery and policy, that is, whether it has a constructive program for building up a staff. Here we turn to ask, What is the efficiency of the staff as it stands?

At the beginning of this chapter three bases for measuring the efficiency of a staff were mentioned. First, the people composing the staff, who are they? Second, how are they carrying on their work? Third, what are the results they

[1] For an important study of facts on these provisions as they are operating in city school systems at present, see *A Survey of the Growth of Teachers in Service*, by Miss Clara Langvick, published by the Grade Teachers' Association of Minneapolis, 1921. The figures of Table XXIII are quoted from Miss Langvick's study.

have obtained? Facts which will reveal the character of the staff from these three viewpoints would include information about training, experience, age, sex, social composition, and professional growth; facts about organization and personal relationships; and facts about the success of the instruction given. All these are believed to bear directly upon the character of the service that is performed. How to study these characteristics, except as noted later, will be our further interest here.

TABLE XXIII. PROVISIONS MADE FOR TRAINING IN SERVICE IN A GROUP OF CITIES

CITY	PROVISION	TEACHERS EMPLOYED	NO. WHO ATTENDED SUMMER SCHOOL	PER CENT WHO ATTENDED SUMMER SCHOOL
Grand Island, Neb.	$75 for college work toward a degree	103	36	34.9
Rutland, Vermont..	Tuition and transportation	66	6	9.0
Racine, Wisconsin..	$100 for 60 hours of work	290	60	20.6
Davenport, Iowa...	$60 for 12 weeks of work, $30 for 6 weeks of work	330	3	.9
Omaha, Nebraska..	$100 as permanent increase in salary to teachers receiving the maximum salary who earn 6 credits. $50 to teachers receiving less than maximum salary and who earn 5 credits.	1120	230	20.5

Exact influence of certain factors not known. At the outset we must say that the exact significance of training, experience, age, good health, sex, and race is not known. We know in general that in many of these matters there is a minimum below which, or a maximum above which we are sure to get a decrease in efficiency of service. Doubtless they affect efficiency, both singly and in various combinations, and in time we shall know much more about the value of these than we do now. At present we assume that from one to ten years of experience is an asset, and that above twenty is very likely a liability. We assume, with reason, that increased amounts of training count for success. We assume that efficiency increases with age, perhaps to forty-five, and decreases rapidly after about fifty-five. We know that a staff largely made up of home talent is too homogeneous to be stimulating to its members; that is it is narrow in its range of ideas as to teaching service. We know that, professionally, a teacher who is not growing is dying. So, if we lack exactness in our definition of efficiency from these angles we can, nevertheless, find evidence of either badness or goodness when it appears in marked degree.

The training of the staff. The amount and kinds of training may properly vary with the character of the work to be done. The information needed by a survey on this point should reveal both character and extent of training, and the teachers should be arranged by groups, as suggested in Forms 9 and 10. These groups could be further analyzed or changed if necessary to meet special needs. These two displays give us a detailed description of the staff being surveyed, and a comparison of the average (or median if preferred) teacher with similar averages in other cities.

A study of the kinds and amounts of training the teachers have had also is important, and for this Form 11 will suggest

a method. To these tables one might add another showing how the staff is distributed with respect to the kinds of institutions, and the locations of the institutions in which they have had their training. Such information would indicate

FORM 9. SHOWING NUMBER OF TEACHERS WHO HAVE HAD VARIOUS AMOUNTS OF TRAINING ABOVE THE ELEMENTARY SCHOOL

YEARS OF TRAINING	TEACHERS			PRINCIPALS			SUPERVISORS	
	El. Sch.	Jr. H.S.	Sr. H.S.	El. Sch.	Jr. H.S.	Sr. H.S.	Reg.	Special
2 yrs. to 3 yrs.								
3 " " 4 "								
4 " " 5 "								
5 " " 6 "								
6 " " 7 "								
20 " and over								
Average Teacher								
Median Teacher								

FORM 10. SHOWING AVERAGE YEARS OF TRAINING OF DIFFERENT GROUPS, IN 25 CITIES

NAME OF CITY	AVERAGE AMOUNTS OF TRAINING ABOVE ELEMENTARY SCHOOL							
	Teachers			Principals			Supervisors	
	El. Sch.	Jr. H.S.	Sr. H.S.	El. Sch.	Jr. H.S.	Sr. H.S.	Regular	Special
City A								
City B								
City Y								
Median								

the extent to which the staff is cosmopolitan in the matter of training and school traditions.

The experience of the staff. Most any teaching experience is of value, whatever the instruction to which a teacher may be assigned. What the amount and variety of a teacher's experience stand for respectively as preparation for her work is not known exactly, but general observations convince us that both add to a teacher's equipment and count for additional success. To assemble information on these

FORM 11. SHOWING EXTENT OF ACADEMIC AND PROFESSIONAL TRAINING OF THE STAFF

YEARS OF TRAINING	NO. OF TEACHERS		NO. OF PRINCIPALS		NO. OF SUPERVISORS	
	Academ.	Prof	Academ.	Prof.	Academ.	Prof
Less than 1 yr.						
1 yr. to 1 yr. and 11 mo. . .						
2 yrs. to 2 yrs. and 11 mo.						
7 " " 7 " " 11 mo						

FORM 12. DISTRIBUTION OF STAFF WITH RESPECT TO AMOUNTS AND KINDS OF SCHOOL EXPERIENCE

YEARS OF EXPERIENCE	TEACHING		SUPERVISION		ADMINISTRATION		COMBINATION OF TCH. SUP. ADM.
	El. Sch.	H.S.	Gen.	Spec.	El. Sch.	H.S.	
Less than 1 yr.							
1 yr. to 1 yr. and 11 mo							
2 yrs. to 2 yrs. and 11 mo.							
x yrs. and more							
Average Teacher. . .							
Median Teacher. . .							

points, plans such as are shown in Forms 12 and 13 are suggested. To these might be added a table showing the average experience of elementary and secondary teachers, and of principals and supervisors for a group of cities. A form for such an assembly of data will readily suggest itself from those presented above.

FORM 13. DISTRIBUTION OF STAFF AS TO AMOUNTS OF EXPERIENCE IN DIFFERENT LOCALITIES

YEARS OF EXPERIENCE	IN THIS CITY	IN THIS STATE		IN OTHER STATES	IN OTHER COUNTRIES	TOTAL
		Rural	City			
Less than 1 yr						
1 yr. to 1 yr. and 11 mo. .						
2 yrs. to 2 yrs. and 11 mo...						
x yrs. and more.....						
Average Teacher.....						
Median Teacher.....						

Distribution of the staff as to age and sex. A well-balanced staff will not be composed of either men or women exclusively, nor of young or old teachers only. It is generally assumed that for the first few grades women are the better teachers, but beyond this it is better to have a mixed staff. For administrative work there is, under ordinary circumstances, no wisdom in having either sex exclusively. As to age, we do not know its influence on efficiency except that young teachers usually have more enthusiasm for their work, they are usually a little more robust physically, they are more likely to keep up their study, and they are more open to new suggestions and ideas. In addition to this, the older a teacher becomes the sooner she will have to be retired on a pension and so become a financial liability.

The facts we are concerned with here are: What are the sex and age distributions of the different groups of the staff, and what is the remaining expectancy of service. Form 14 suggests a plan for assembling these data.

FORM 14. SHOWING AGE AND SEX DISTRIBUTION OF STAFF BY GROUPS

AGES	TEACHERS				PRINCIPALS		SUPERVISORS		TOTAL NUMBER INCLUDED		AVERAGE EXPECTANCY OF SERVICE REMAINING	
	El. Sch.		H.S.									
	M.	W.	M.	W.	M	W.	M.	W.	M.	W.	M.	W.
19–20.....												
20–21..												
64–65.....												
Total cases												
Median age												

Note: See also Form 2 on Expectancy of Service.

Social composition of the staff. Training and teaching experience are essential aspects of a teacher's equipment for her work, yet it is doubtful if these are much more important than is the general social inheritance. Social inheritance may be partly intangible, but we know that different race traditions count for different things. We know that the home occupation has much to do with the traditions, ideas, customs, and the type of social groups in the midst of which a child grows up, and that each of these contacts with the world tends to give the child's mind its general set.

We can study certain of these factors with little difficulty, and from them gain some idea of the nature of those rather subtle influences that stamp themselves upon the instruction. We would not want a staff made up exclusively of the

foreign-born or of children of the foreign-born. We desire teachers with American traditions that have been rooted deep by many generations of American life. Even here we have wide variety. The Pennsylvania German, the Massachusetts Puritan, the Scandinavian of the North Central States, the Southerner, the Westerner, and the urban and rural groups are samples. Again we would not desire a staff composed exclusively of the children of merchants, of tradesmen, of farmers, or of professional men, for each of these is but a part of all that goes to make America. The race, the place of birth, and the home occupation are a part of the index to the character of this complex of forces called social inheritance. Forms 15, 16, and 17 are suggested as suitable methods of assembling the data needed for this part of the study.[1]

Growth in service. Is the staff growing or standing still? The schools may provide for sabbatical leaves, or for additional pay for travel and study, but unless use is made of these opportunities they are of little worth. Facts about the use of the sabbatical, study at summer school, extension or correspondence study, professional books and journals read, experiments made, investigations and research, articles published, and about reports and addresses given are facts that furnish an excellent index as to the efficiency of the service. A simple tabulation of these data can be made, and they will be found very illuminating.

2. Facts about the organization and working arrangements of the staff

Lines of authority. Here we are concerned, not with the principles of organization or with the general division of

[1] This is rather more detail than is ordinarily necessary in a survey by an outside expert, but would be decidedly useful to a superintendent who is making a point of building up a strong staff.

FORM 15. DISTRIBUTION OF STAFF AND OF PARENTS OF STAFF WITH RESPECT TO PLACE OF BIRTH

BIRTHPLACE (STATE OR COUNTRY)	TEACHERS			PARENTS	
	Men	Women	Total	Mothers	Fathers
1 Alabama					
48 Wyoming					
England					
Germany					
Italy					
France					

FORM 16. DISTRIBUTION OF STAFF AND THEIR PARENTS WITH RESPECT TO RACE

RACE	TEACHERS			PARENTS	
	Men	Women	Total	Mothers	Fathers
American					
Canadian					
English					
French					

FORM 17. DISTRIBUTION OF FATHERS OF MEMBERS OF STAFF WITH RESPECT TO OCCUPATIONS

OCCUPATIONS	NUMBER OF FATHERS
1 Agriculture	
2 Mining	
3 Manufacturing	
4 Transportation	
5 Trades	
6 Public Service	
7 Professions	
8 Domestic and Personal Service	
9 Clerical	

functions in the system, but with the relative size of the various groups of workers and with what they are doing to coördinate their work. The success of the work depends not merely upon the size of the staff or of any one group, but also upon their organization and ability to work together as a unit.

How to study the organization. The number of supervisors, principals, and assistants, or the number on the staff who are not actually giving instruction, is one index as to the importance that is placed upon these several functions by the school authorities. This number will vary greatly even in cities having the same number of pupils, because of variation in size of buildings or other organization units.

The number of teachers per supervisor or per principal is, nevertheless, an index worthy of notice. It is important from the standpoint of costs, as well as from that of efficient instruction and efficient supervision, and should be studied for all three of these reasons. The data needed for the study is suggested by Form 18 following. To this might very well be added a column showing the number of clerical workers for each administrative officer in the system.

The student of finance might be interested in knowing how much of each one thousand dollars spent on instruction went for actual teaching, and how much each for administration, supervision, and clerical service. Similarly, a study of efficiency in instruction is concerned with the value of these groups of clerical, supervisory, and administrative officers. These workers constitute an "overhead" educationally, as well as financially, and the survey needs to know what contribution they make.

3. Facts about the efficiency of instruction

Measuring the teaching. We may measure the efficiency of instruction either by measuring the instructional process

or by measuring the product. To measure the process we have at hand a number of devices, as suggested above, and in due time these are likely to be perfected so that they will be useful. For a survey, however, it would not be practicable to undertake to rate the teachers at work.[1] Consequently we must concern ourselves with a measure of the results as shown by the accomplishment of the children.

FORM 18. NUMBER OF TEACHERS PER PRINCIPAL AND PER SUPERVISOR, IN 25 CITIES

CITY	NO. PER PRINCIPAL			NO. PER SUPERVISOR		
	Elementary School	High School	Total	Regular	Special	Total
City A.....						
City B.....						
City Y.....						
Average City						

The final test of the efficiency of a staff is the amount and quality of service rendered. If the actual output of work — that is, instruction given — is large and of superior quality, then we know the schools are well staffed, and if they are well staffed the staff policy and machinery must be of high order.

The contribution which a staff makes can be measured, at

[1] Several surveys have attempted to study the teaching in this way and, while the reports give only description and general opinion, no one can doubt that these have been extremely useful. See *Survey Reports* in the following cities: Butte, Montana; New York City (volume by McMurry); Portland; and Salt Lake City.

least in part. This question is so large and touches so many aspects of the whole problem that, for survey purposes, it seems better to give it the prominence it merits. The problem of good results in the classroom is intimately connected with the problem of staff, to be sure, but it is also connected with the question of good curricula, good work schedules, good supervision, good equipment, and good organization. Instead of treating it here, or in connection with any one of these problems, it will occupy a considerable portion of Part III of the book.

QUESTIONS FOR CLASS DISCUSSION

1. What is the best means for determining whether a school is adequately staffed?
2. What would be regarded as a normal annual turnover in staff? (See *San Francisco Survey Report*, p. 69.)
3. What should be the ratio of non-teaching members (administrative, supervisory, inspectorial, business, health, research, and clerical officers) to teaching members in a well-staffed school system for a city of 100,000 population? How would you proceed in an attempt to get some standard for comparison with your school system?
4. What are the advantages of long tenure, and the difficulties of insuring long tenure to teachers without endangering the right of the board to dismiss incompetent teachers?
5. In judging a candidate for a teaching position in grade 8, what value would you attach to one year of graduate study? to ten years' experience in place of five years'? As a general standard, what amount of experience do you think should be considered the maximum as an asset? For grade 8, what amount of training (assuming that the training is appropriate) is the most desirable maximum amount?
6. What is meant by "teaching load," and how would you proceed in an attempt to equalize it in a high-school program?
7. In what ways can the schools profit by assigning administrative duties to teachers?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Make a comparative study of the entire staffs of ten cities in accordance with the following form, choosing cities about equal in both total and school population. In a second table express the staff figures in percentages of total staff. Use the following Form for data.

Name of City	Total Population	Average School Enrollment	Number in Staff										
			Elementary				High School				Administration Business	Total	
			Teachers	Principals	Supervisors	Clerical Help	Teachers	Principals	Supervisors	Clerical Help			

2. Prepare a full description of the machinery used in a given city for the development and maintenance of a school staff.
3. Make a comparative study of the salary schedules of ten cities. Examine a group of survey reports for a statement of principles on salary schedules.
4. Describe the rules governing tenure in ten cities, and check them against survey report comments on tenure laws.
5. Work out tables for your own city, showing:
   a. Age — tenure distribution of the teachers.
   b. Experience — tenure distribution of the teachers.
   c. Training — tenure distribution of the teachers.
6. Study a selected group of survey reports for their treatment of the problem and the responsibility of building up a staff.
7. What light have survey reports thrown upon the value of our tenure laws and salary laws?

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CHAPTER VII

RECORDS AND REPORTS

1. Records and reports a part of school organization

Why we need records and reports. The organization or operating machinery of a school system consists not only of men and women, but also of records, reports, schedules, forms, and rules by means of which the work of the staff is coördinated and held to a conscious and continuous policy. Without such an organized framework there could hardly be consistent and rational procedure in a large school system where items of information cannot be passed from one officer to another by word of mouth, and where the number of facts to be kept in mind is too large to be trusted to memory.

The time was when the work of a school was so simple in character, and when school systems were so small that little bookkeeping was necessary. Then not much was spent on administration, there was little knowledge as to scientific procedures in education, and no means of measuring output. Now all this has been changed. The city no longer has schools but a school system, and the cost is nearly a third of all public expenditures. Sound principles for the conduct of the schools have been formulated and applied, and everywhere we are to-day trying to measure the output.

All this expansion can be carried on economically only if a strict system of accounting is demanded, and accounting is only possible if records are made and procedures are standardized. The character of this organization in a school system, and the success with which it is doing its work are, therefore, an important index as to the efficiency of the system, and cannot be overlooked by a survey that purports to be reasonably complete.

Principles underlying the organization of a system of records. Certain of the general principles set forth in Chapter III must be kept in mind in working out this organization. They unify the system by keeping its parts in harmony. The organization must be built up with reference to the functions that are to be performed. Here, as everywhere else, there is a proneness to create more machinery than is needed and to make the machinery too complicated. Directness and simplicity are as important here as elsewhere in school organization. If the organization has been built up with reference to the functions to be performed, and not with reference to some one's theory of accounting or theory of classifying and filing, it will be simple in structure and economical to maintain.

Three main types of functions. There are three main groups of functions to be performed by this phase of the administrative organization in any large school system.

1. Correspondence and reporting. First, there is need for an exchange of information from point to point in the system. A principal may send an informal note to a parent or to a janitor. The superintendent may leave a letter on his stenographer's desk with "please reply" penciled on the margin. There is a continous flow of these informal exchanges. Again, a teacher may send to her principal a formal statistical statement summarizing certain facts about the last month's work in her room. The business office may send to the superintendent a statement of the quantity of supplies in stock, and the balance on hand in the "supplies" item in the year's budget. These are illustrations of much more serious and formal exchanges, but here also it is a matter of sending information from one officer to another. We may think of all this as correspondence, or as reporting.

2. Records. The second main group of functions is that of recording facts. The teacher records the fact that two

boys were absent from class at the opening of the session. After recess but one was missing. After lunch three were missing. At night these facts are summed up and placed against the boys' names in the teacher's daily register. The records were made in detail during the day with pencil on a simple pad; at night only the summary of this for each child is transferred to a somewhat more permanent record. At the end of the month these facts are again transferred to the child's report card and, in summary, to an attendance report for the room to the principal, who in turn summarizes the reports from all the rooms for the superintendent. In the business office a corresponding set of records of all transactions is kept. Thus the range in a record system is from very simple, very detailed, and very temporary, to very complicated, very condensed, and very permanent records of facts.

3. Rules and regulations. A third group of functions which must be served by this part of the organization of a school system is that of furnishing specific directions for procedures. Salary schedules furnish a definite expression of the classification of all service. Tenure rules, pension rules, work rules, daily time schedules — each systemizes the procedure of the staff along a certain line. Application forms, order sheets in the purchasing department, voucher forms, and forms of contracts suggest ways of simplifying and guaranteeing legal and equitable action.

2. The problem of the survey

Economy *vs.* red tape. Without some formal machinery for taking care of the correspondence, the records, and the rules of procedure in a large school system, waste and inefficiency must inevitably result. As suggested by the illustrations given, each of these functions is complex, and the surveyor should plan to work with some definite end in view. In each of these groups of functions it is plain that the divid-

ing line between cases where regular and formal procedure in the matter of reporting, recording, and directing action would mean speed, accuracy, and economy on the one hand, and where it would mean "red tape," or lack of economy on the other, is not always easy to determine. Where a given kind of information is to be reported often, where certain facts are to be recorded at brief intervals, or where the same procedure is to be followed over and over, the forms for caring for these matters may wisely be standardized. Where do such needs exist, and how effectively are they met, are questions for the survey to determine.

To illustrate, let us imagine a school system in which the superintendent and board have officially determined upon the length of the school year, when it is to begin and end, what vacations and holidays are to be allowed, and what special programs of celebration are to be carried out. These decisions can then be prepared in the form of a school calendar, published as an official "order of procedure," and made available to all members of the school staff. When it has been placed in the hands of all administrative heads it has then become a fixed part of the school machine. Without such a document each of the items cared for in the calendar would have had to come up for separate action by the board. Probably they would have appeared on the docket only when decision was needed. The result would be that each item would be settled separately, and not as a part of a year's program. Further, after each decision, special announcements would have to be sent out from the superintendent's office, to inform the staff of the decisions.

This is a simple illustration of the waste of time, increase in labor, and lack of broad perspective that are connected with hand-to-mouth procedure, and how this waste is overcome by a formal standardized form of organization.

The problem stated. The survey of this feature of the

system has three main problems. First, it must find out what records and forms are needed by the system. Second, it must check the forms in use against the actual needs. Third, it must make constructive proposals with respect to the service that is being rendered.

3. How to study the needs of the system

Need for standard forms for all cities. The need for a common set of standard forms for collecting and compiling information about schools is now so well understood that this point needs only to be mentioned here. A set of forms has been worked out by the United States Bureau of Education, the Department of Superintendence of the National Education Association, the United States Census Office, and the Association of School Accounting Officers.[1] If these forms are not in use in a city then the survey must examine the possibility of introducing these or other forms that will serve the purposes of these.

Of course the set of forms here referred to is not a complete set. It covers the bare essentials, and leaves wide opportunity for the individual city to have many forms suited to local conditions and to temporary needs.

List and classify the needs. The first step in the survey of needs in a given city will be to make a careful list of the functions that are to be served, and then study and classify those functions.[2] Above we have described and illustrated the three large groups of functions: reporting, recording, and directing operations. Our inquiry must now become more specific. What reporting, what records, what directions should we try to reduce to standard form.

[1] See United States Bureau of Education, Bulletin no. 3 (1912), for a full discussion of these forms.

[2] The nature of these functions will be treated in more detail in later chapters. See especially Chapters X, XI, XII, XIII, and XVII.

It will, of course, be obvious that many of the forms will serve two or even all three of the purposes mentioned. The board may pass a salary schedule. The act of the board will then be recorded. The superintendent will report this action to his staff. The schedule then stands as a set of directions for classifying salaries and service. Thus the schedule becomes a record, a report, and a set of directions. The basis of our classification is thus seen to be the use to which the form is put. It is the listing and classification of these uses with which we are here concerned.

Education and business needs. One useful classification of needs is that under the headings of education and business. One has to do with educational, and the other with business and financial matters. The purpose of the one is to systematize educational procedure, to coördinate the educational forces, and to provide a fact basis upon which a sound educational policy may be worked out. The purpose of the other is to systematize the handling of all business matters, to provide a check on all funds, and to reveal the cost of the education. In each of these there must be reports, records, and directions.

This cleavage between educational and business activities is one of the most important, because both sets of accounts are dominated by the same general purpose, namely, to have good schools conducted economically. The two groups, therefore, have very much in common, and cannot be worked out as if education and finance were entirely separate problems.

The need for reports. There are two needs for reports. One is within the school system itself; the other is a report from the schools to the people. The purpose of the one is to coördinate the parts of the school machine and furnish a fact basis for a school policy, as already stated. The purpose of the other is to inform the public as to what the schools are

doing, what they cost, and what they need. The former we commonly think of as a set of standard forms. The latter we think of as circulars, bulletins, or as a printed pamphlet prepared annually by the superintendent.

The principal occasions for formal reports and the character of those reports may be listed as follows:

1. Report by teacher to principal of enrollment, attendance, withdrawals, tardiness, ages, sexes, discipline cases, and scholarship of class (monthly).
2. Report by principal to superintendent, summarizing these facts (monthly).
3. Reports similar to (1) and (2), but including the matter of promotions (by terms).
4. Report by teacher and principal to parent of the items in (1) above (monthly), and in (3) (by terms).
5. Report by principal to attendance officer of unexcused absentees (irregular).
6. Report by attendance officer to principal on individual cases, and summary report to superintendent (by months or terms).
7. Reports by superintendent to board of education, financial and business matters at regular meetings, and formal reports by terms and years.
8. Printed report of superintendent, through the board of education, to the public (annual).

In addition to these there are many functions of lesser importance, but these have to do with facts which are essential in the formulation or modification of the school policy. Accordingly forms for reporting can be reduced to some standard, so that to a considerable extent the preparation of a report is a clerical task in which terms do not have to be explained, and facts fall easily into groups which provide for the analysis desired.

It is not feasible to offer here a set of forms to be used as a standard. The forms above referred to will serve to some extent in this connection. One test to apply in a survey is

the use that is made of data reported. No report is an end in itself. It must convey information to some person, or to some point in the system where there is need for it. If it is not actually used after being provided, then it should not have been provided. If this test is applied to every report form provided, it will serve to distinguish real reports from red-tape reports. Further, even if the report is used, the use itself should be examined to see if it is worth the cost.

The need for records. Records serve to connect the present with the past, and to point the way into the future. One may wish to study the story recorded merely as a part of local history, or he may wish to study it with a view to deciding important problems of present or future policy. If the latter, then the story must contain such facts as are essential in forming a policy.

Who makes educational policies and educational decisions, for the present and the future? Every school officer makes some decisions, and many of the officers must make decisions that call for careful studies of facts. Without any records the teacher may decide whether John deserves some minor punishment, but when it is a question of John's promotion she will usually go over her records of his work. The principal may easily decide on a program for morning exercises, but in presenting his needs for a larger staff or a larger budget he will have use for the records which show the size, character, and needs of the school he is conducting. The case is similar for the superintendent, the attendance officer, the clerk, the purchasing agent, and the board of education.

Temporary and permanent records. Some of the facts that are useful in school work are useful only once, while others are useful at intervals for many years. To avoid filling archives with useless materials, records that have only a temporary use should be destroyed, while those of perma-

nent value should be filed in a manner to make them easily available.[1]

The teacher and principal will want to follow a child through his entire school career. Permanent record should therefore be made at intervals of the essential facts about the child's attendance, health, school progress, and social and moral development, as well as an initial record of sex, age, race, and similar facts. The superintendent will need a permanent and cumulative record of the work and character of all members of his staff, if each year he hopes to assign them to positions where they can render the best service.

Isolated facts and summaries. Some records will show individual facts as facts about a given pupil. Others will show summaries, or compilations of such facts. In business the daybook illustrates the former, and the ledger, the inventory, the budget, and the trial balance illustrate the latter. In education the pupil's report card, the teacher's attendance register, and the cumulative record card of the pupil illustrate the former. Tables summarizing enrollment, attendance, progress through the grades, size of classes, age and sex groups, extent of plant, and instructional costs, usually prepared for the superintendent's annual report, illustrate the latter. The extent to which the survey is able to find intelligent summaries of important facts in the offices of principals, supervisors, superintendent, and board of education is not an unimportant index to the character of the school system.

Some of the more important needs for detailed individual records of facts would include: (1) facts which describe the pupil minutely; (2) facts which describe the progress the

[1] Office organization and filing systems in educational work have not reached a very high degree of perfection as yet. Surveys may wisely hope to bring this constantly growing problem in school administration to the light.

pupil makes; (3) facts which describe each member of the staff; and (4) facts which describe the contents of the library. From records such as these, summaries such as have just been suggested should be made.

Need for standard directions. A school policy is a collection of decisions or enactments, each of which has been made with reference to all the others and with reference to groups of facts which have been studied. If the policy were written out in full it would reveal a complete plan of procedure, together with principles for governing action. Many parts of a policy can be drawn once for all, where continuity and consistency are desired as they are in the management of schools.

For instance, the policy of a board touching the organization of the schools may be shown partly in graphic form, as in Figure 4, page 68, and partly in the form of an administrative code or a set of enactments defining the function of each officer in the organization. Very often this feature of a board's policy is never carefully formulated, and where this is true there frequently is friction and misunderstanding. Similarly, imagine a school system with no classification of service, no orderly arrangement of courses, and no uniform list of textbooks, or a classroom with no constant plan for the week's work, or the business office with no standardized forms of contracts. Such cities would have a lack of system that would show itself in disorder, discontent, high costs, and inefficiency.

List of such forms. Such forms as the following may be listed in this classification:

1. Order of business, controlling procedure in meetings of the board of education or in teachers' organizations.
2. Plan of organization, and definition of duties of officers.
3. The printed outline of the course of study.
4. List of formal textbooks to be used.

5. The school calendar or year's program.
6. Salary schedule and wage schedule, with classification of service.
7. Application blanks and contracts for service, differing with different classes.
8. Official daily or weekly time-allotment schedule.
9. Legal instruments used in purchase of land and buildings, and in securing loans.
10. Voucher forms and requisition forms.
11. Pay-rolls.
12. Tenure, promotion, retirement, and pension rules.

If the policy of a board touching these matters is so defined that standard printed forms may be issued to cover the business which these various instruments suggest, very much will have been done to guarantee order and system in the schools. If any of these are lacking, the survey will do well to examine the need for it.

4. How to study the forms now in use

Collect and classify the forms. Having looked into the needs for a set of forms, the next step is to study the forms now in use and to determine if they are meeting the needs of the system. To do this the first step should be to make a complete collection of all the forms in use, and then to classify these forms in accordance with the functions explained above. First, they might be separated into educational and business groups, and then each of these into forms used for reporting, forms used for records, and forms used to define procedure. Each of these groups may then be examined with reference to the needs of the various offices, or of the individual persons who will make use of such forms.

Real service the test. The worth of any form or set of forms is the service it renders. The most perfect form is worthless if it does not affect school practice, and it is worse than worthless if it functions merely as "red tape."

Accordingly, when the forms have been classified, the service of each class must be studied.[1]

One of the important services to be rendered by forms is that of making possible a comparison of the facts of one school or school system with similar facts for other schools or school systems. This can be done only if standard forms and standard nomenclature and standard methods of assembling the facts have been used. Accordingly, certain of the basic forms should be compared with the forms proposed by the national committee above mentioned.

The needs within the system have been explained above. If the various blanks are carefully checked against the needs as there described, it will be possible to point out the places in the system where there is lack of coördination, where decisions are being made without proper respect for facts, where procedure is slow because of a clumsy method of transmitting or recording facts, and where there is lack of system due to lack of official schedules, classifications, and rules of procedure.

The superintendent's annual report. It would be hard to explain just what constitutes a good superintendent's report, if we were to judge by the reports in print. They contain discussions, short and long, of almost every possible topic, but vary in all essential particulars. Some are brief and some are very long, some consist largely of formal statistics and some are entirely without figures, and some are illustrated and some are not.

A good report will surely tell what the schools are doing, what they have accomplished, what they have cost, and what they need in order to bring them forward along the lines of a progressive policy. They will not contain matters which are not pertinent to these ends. Why report long lists of names of pupils, or teachers, or previous members of

[1] See Section 7 of Chapter X for more detailed comments.

the board of education; pictures of the members of the board; long oratorical declarations about the glory of public education; tedious reports of details, by principals and supervisors; barren reports of enrollment and attendance; courses of study; and board of education rules? These may be useful somewhere, but not in the annual report. A good report will speak in quantitative terms, and yet with an ease and fluency that will make its meaning clear and interesting, since it has no reason for existence except it be to inform the public. It will present many summaries of facts about pupils, and the work they have done; about the conditions under which work has been done; about the new lines of development; about health, buildings, the scope of the school work; and it will tell what these things have cost and how much must be spent next year to keep the program going.

There is no exact measure which the survey can apply to the superintendent's report, but it can ascertain whether or not it is characterized by the presence of the purposes and characteristics mentioned here as desirable, and by the absence of those mentioned as undesirable.

5. Making constructive criticisms

The effect of sudden extensive changes. To tell a city what to do to bring its organization up to a high degree of efficiency demands, as pointed out above, that we shall show clearly, first, the need for such new machinery; and second, the points at which the present provision is wrong or inadequate. Beyond this we must tell them how to make the necessary changes.

Very little experience is necessary to impress one with the evil effects produced on workers, accustomed to one set of rules and one form of clerical work, by a sudden change in the rules and forms to which they have been accustomed.

A new form of report to the principal or superintendent, a new salary schedule, a new teaching schedule, or a new form of contract may be very disturbing and may call for many explanations.

To avoid the consequent disturbance of workers, changes should be clearly explained, and as a rule a gradual shift to the new forms usually will be better than a complete change at one time.

Importance of continuous records. In transferring to new forms, care must be taken to make it possible to interpret the old records in the new terms. If the attendance facts have been recorded in a certain way, and the new forms call for a very different way, then unless the old records can be converted it will be impossible to use past figures in comparative studies of attendance data. The survey cannot be too explicit, therefore, in its explanation of this adjustment.

Actual forms should be offered. The best procedure will be for the survey to define the function and offer a form drawn up with special reference to that function, and then show how the form is to be used.[1] It would be possible to propose here, if the space were available, a considerable number of forms that would be suitable for most any city school system. In many cases, however, the local situation must be taken into account and the study made specific.

6. Summary of Part I

Two purposes stated. In completing Part I of this book it may be well to offer here a brief summary of what has been covered up to this point. It will be recalled that the book has two purposes. First, it is an attempt to offer to one who wishes to make a survey of a school system such specific, if

[1] Appendix A in *The Portland Survey*, and the set of forms in the *Report of a Survey of the School System of Butte, Montana*, offer good illustrations of such specific proposals.

not greatly detailed, directions as will be necessary to guide him in his examination, in his analysis, and in his constructive handling of the problem. Second, it is an attempt to present an analysis of the problems of organizing and administering a system of schools, together with the facts and the technique by means of which a superintendent may apply thoroughly scientific methods in the study and management of his schools. These are by no means conflicting, but rather quite similar purposes, since scientific administration involves a continuous survey process.

Application of these purposes to larger administrative problems. This Part of the book has attempted to carry out these two purposes as they apply to the larger administrative machinery and problems of a city school system. In doing this the first step was to show how to proceed in the development of the broad outlines of a school policy. What is a school policy? What facts are necessary to use as a basis for forming a policy? Where to obtain these facts? How to assemble them for study? How to interpret the findings? These questions were dealt with in a way intended to reveal the needed technique, as well as how to use it in defining the educational needs of a community.

The second step dealt with the main legal and administrative structure of the system. Here the questions were: Of what does this framework consist? How to secure the facts which reveal its character? How to evaluate those facts? What principles apply, how and where they apply, and how to recognize their success or failure as they operate?

Following this came a study of the problems of finance and business management. The questions here were: What measures financial efficiency? How to locate the sources which ought to contribute to the support of schools? What financial machinery is needed? How much a city should spend on schools? How to handle the problems of credit?

How the school money is spent, budgeting, the analysis of costs, and business management? These were treated, together with the technique needed for studying these problems.

Buildings and building programs came next. The educational and business aspects of the problem were explained, and then methods by means of which the city's needs for buildings and grounds, the present efficiency of its plant, and its capacity to satisfy its needs were presented.

The next chapter was devoted to a study of the staff. The two main problems — (1) What kind of plans does the city have for developing and maintaining a staff? and (2) How efficient is the staff as it stands? — were explained, and illustrations of the technique and how to use it in the study of the many aspects of these problems were shown.

Finally, a brief treatment of the formal organization necessary to coördinate and systematize the work of the human machinery of a school system was presented.

In considering each of these problems it was our purpose first to make the problem stand out clearly as a problem. Next we tried to show specifically of what the problem or machinery in question consisted by showing what were the functions to be met. Third, we explained what facts and principles were essential in any study of the function. Fourth, we explained how to make the study. Finally, we indicated how to formulate a report of the conclusions of the study. If the book is carefully studied up to this point and the suggestions followed, it is believed that a fairly complete and scientific study of the larger structural aspects of the administrative machinery of a school system can be made, and that a superintendent can, by such study, move with confidence to the settlement of the problems that have so far been treated.

QUESTIONS FOR CLASS DISCUSSION

1. What records, what correspondence and reports, and copies of what printed rules and regulations would you expect to find? —
   a. In the office of an elementary-school principal.
   b. In the office of the attendance officer.
   c. In the office of the clerk of the board of education.
   d. In the office of the director of health.
2. With what of these features of the organization should a teacher be familiar?
3. What should a superintendent's annual report contain? See *Survey Reports* of Butte, p. 135; Elyria, p. 55; New York City, volume by Moore, p. 121; Portland, p. 392; and St. Louis, part 1, p. 43.
4. What need is there for a careful coördination between business records and educational records?
5. What have good filing systems to do with the effectiveness of the matters discussed in this chapter?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Make a list of all the forms used in a given city, and classify them as suggested in this chapter.
2. What of these forms would you regard as suitable for use in any city, and what apply only locally? Check them against the proposals given in the *Butte Survey Report*, page 135 ff.
3. Check the list classified against the proposed list presented on page 398 of *The Portland Survey*. Also compare with the list on page 400.
4. Make a collection and comparison of the records and reports used by the school census department.
5. Make a study of a collection of city superintendents' annual reports, with reference to:
   a. What topics are treated?
   b. How often is the report published?
   c. Length of the report.
   d. To whom is the report addressed?
   e. As to use of graphs and illustrations.
   f. What facts are presented in tables?
   g. Presentation of the needs of the school.
   h. The method of reporting education costs.
   i. The progress of children in the grades.
6. From a selected group of survey reports collect and classify the criticisms and the constructive suggestions offered on the subject of records and reports.

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PART II

INTERNAL ADMINISTRATION AND MANAGEMENT

CHAPTER VIII

ORGANIZATION OF THE CHILDREN

1. The problem of Part II

The purpose of Part I. Up to this point our survey has covered only the larger and more external features of a school system. The purpose has been to distinguish between the general structure or framework of the system on the one hand, and what goes on within that framework on the other. We may think of the survey so far as a study of what might be termed the educational overhead of the system. This overhead determines the essential conditions, if not the entire limitations of what can be done to train the children of the city. The responsibility for this machinery and for its operation lies mainly with the board of education and the superintendent of schools. If the machinery is poor, or if it is badly operated, then we may be quite certain that further steps in the survey will reveal weaknesses many of which cannot be overcome without change in these external overhead conditioning features of the system.

Part II a more intimate view. Part II of our study brings us into closer touch with the child, with the teacher, and with the processes of instruction and management. It takes us to the inside, as it were, to see what it is that this external machinery is accomplishing. We do not leave the board of education entirely out, nor do we leave the superintendent even one step behind. Instead, we insist upon being personally conducted by him through the labyrinth of detail that is going on within. Everywhere we shall expect him to explain how this plan of organization, this course of study,

this scheme of child accounting, or this system of educational guidance are the detailed outcomes of the plans which he revealed to us in the earlier part of the survey.

Here the superintendent will not be working alone, however. He will work with others, and he will delegate responsibility to others, but for any important detail that is not in accord with the main policy, for which he primarily is responsible, we must hold him accountable. That is our check upon his ability wisely to delegate responsibility. Of course this cannot be carried to a foolish extreme. The philosopher can hardly be held responsible for the wrong philosophy of his disciple. Yet, for the sake of efficiency, we have demanded large centralization of authority in the hands of the superintendent; let us now see to it that a corresponding responsibility is borne. This does not lay all the petty troubles of janitors, teachers, and principals upon his table. We ask of him that he use the best means of selecting and developing a group of teachers and principals, and that he provide them not only with the best possible conditions of work but as well with a general policy to follow. Beyond this the principal and teacher must stand on their own feet and walk alone. When they are not able to walk alone, we must hold the superintendent responsible — unless unwise laws prevent — for getting others who can.

The handling of details. The problems which might properly be classified under the title of this division of the book are numerous, and might easily lead us into very great detail. One of the most difficult problems, either in surveying or in administration, is to keep one's self from being overwhelmed by details. As one frees himself from the larger aspects of the survey problem, as treated in Part I, and stands at the entering door of the school, where he can see the coming and going and hear the hum of the complicated machinery of the school, he is impressed with the

thousand points of contact which seem fairly to hold out their hands to him.

After all, there is a good amount of order in what may seem so complicated. Most details are parts of larger units of machinery, or processes, or purposes. These larger units the administrator and the surveyor must learn to see. We know that it is wasteful to argue about details without referring them to their setting. For the purposes of this book we shall outline our plan of study for this Part with reference only to certain of the larger functions that may properly come under the head of internal administration and management.

Plan of study based on functions. In Chapter II of Part I, we showed how to study a city with a view to drawing up the general outlines of a policy. There we asked: What should be the educational aims of the system, what kinds of schools are needed, and how many schools? Here we turn to the question of how these provisions are being met. By what kind of organization of the children, by what kinds of subject-matter and courses of study, by what kinds of programs of work, how are the children being kept track of and guided through the schools, and how are we to keep track of what they accomplish in their work are points of attack?

The chapter titles of this Part are suggested by these questions. When these titles are read they will be seen to represent so many functions, each of which is fairly distinct, but which together form a second large functional unit of the school system corresponding in importance, and also in unity, to the function treated in Part I. These titles are:

Chapter VIII. Organization of the children.
Chapter IX. The curricula.
Chapter X. Child accounting.
Chapter XI. The daily program.
Chapter XII. The system of grades and marks.
Chapter XIII. Educational and vocational guidance.

It is not insisted that this is the only suitable analysis of this part of the survey, but it does offer important practical and concrete points of approach about which all the details which should be studied in a reasonably complete survey may be gathered.

The purpose and methods of Part II. In this Part it will be our purpose to show, for each of these functions, what facts must be examined, how to collect and analyze them in a way that will reveal what is needed, the extent to which the need is being met, and what should be done next. We shall try to bring to light the particular technique essential to each step in the study, and to show how that technique is to be applied.

As at so many points in education, we shall often resort to description, analysis, and criticism. We shall often measure by applying principles, rather than by applying exact standards. At many points we shall base our judgment upon comparisons. Some of these comparisons will be quantitative, though sometimes they will be qualitative only. In all this we shall have in mind not only that we are making a survey, but that we are showing to the superintendent, the principal, and the teacher how to apply scientific method in the conduct of these several tasks.

2. The first step in this study

The plan of organization. In order to proceed logically, our first problem will be to study the general plan of organization under which the work of the schools is being carried on. Whatever is done is done with respect to the needs of the children. Consequently the child becomes our immediate point of departure in judging the efficiency of the aims, plans, and processes with which this part of the survey will have to deal.

From Figure 4, page 68, we were able to see the general

framework of the school system, and by Figure 3, page 49, we showed how to obtain some notion of the program of study which is provided. Here we wish to take a closer view of this program, including the machinery by which it is administered. Should the city offer a twelve-year program, or should it be longer or shorter? Also, how varied should this program be, and how should it be arranged? Another way to put these queries is, how much education should the city offer, what kinds of training should it provide, and what is the best administrative plan to use?

The plan of organization as it affects the staff, or the curriculum, or the expansion of plant and equipment must be worked out with reference to the aims and educational needs of the city. From such a study as that illustrated in Chapter II we would arrive at a partial basis for saying whether the city should have kindergartens, night schools, continuation schools, schools for adults, technical and vocational schools, or a junior college. Assuming that these facts have been settled, we now turn to the task of devising a machinery for carrying out what is needed.

Factors involved in making plans. In examining the plans that are in operation, or in working out a new constructive plan, we shall have to take a number of factors into consideration. First, whatever the needs, we cannot ignore the present plant and equipment. Good buildings cannot be discarded without thought of cost, and remodeling often is next to impossible. In such cases the plan of organization must necessarily be drawn with reference to existing buildings. Again, the distribution of the population and the geography of the district may make certain desirable plans of grouping quite expensive, or even impossible. Then there is the size and distribution of the various groups for whom special kinds of schools ought to be provided. Finally, we must reckon with the cost of any plans, or modifications of plans.

On the other hand, we must be guided as far as possible by the best principles of organization as they can be made to apply within the limitations just suggested. Let us assume that by our studies, illustrated in the chapters dealing with general policy, finance, and the building program, we have before us a general statement of the kinds of schools needed, the extent of the need, and the rough limitations within which we must organize the schools.

The problem of this chapter. Our next step would be, and this will be the problem of this chapter, to show how to proceed in the study of that aspect of the plan having to do with the organization of the pupils into schools, grades, and classes — that is, whether these features of the system as they are now operating are the best that could be provided, and if not, then how to determine what modifications or changes to propose. Incident to these purposes we shall necessarily deal with the questions of departmentalization, promotion, and class or course credits.

3. Organization into schools or administrative units

Character and extent of the educational program. Let us assume that we have before us the facts to show that there are many congested communities in the city where there are relatively large families, and where large numbers of the mothers work away from home during the day. This is sufficient argument for some plan of infant care and training. Day nurseries, parks, supervised playgrounds, and kindergartens are at present the accepted solution. Our problem is to determine whether the schools are meeting their proper part of this obligation.

Let us suppose that in parts of the city there are large numbers of children who quit school as soon as the law permits, partly because of poverty, and partly because of low intellectual ideals and traditions. Our inquiry now is, is the

organization of the elementary schools adjusted to the needs of these groups. Form 19 suggests a plan for gathering the needed data.

FORM 19. SHOWING WHAT THOSE ELIMINATED FROM THE ELEMENTARY SCHOOLS ARE DOING

GRADE	NO. OF ELEMENTARY SCHOOL PUPILS WHO LEFT SCHOOL							
	Because of			To take position			Total	Per cent of average enrollment
	Physical defects	Mental defects	Moral or social defects	Labor	Clerical	At home		
I....								
II....								
III....								
IV....								
V....								
VI....								

Let us suppose that figures such as are indicated in Form 20 show that large numbers of the high-school pupils enter clerical positions, trades, common labor, and subordinate positions in business. Let us suppose, too, that we have

FORM 20. OCCUPATIONS IN WHICH THOSE LEAVING HIGH SCHOOL ARE ENGAGED

YEAR	HOW THOSE WHO LEFT SCHOOL ARE OCCUPIED									
	Common labor	Trades	Industry	Business	Commerce	Clerical	At School			
							Col.	Com.	Tech.	Prof.
Fresh....										
Soph....										
Junior...										
Senior...										

statistics to show that the demand in these fields is relatively large and quite constant.[1] Our inquiry now is, does the scheme of organization take these demands into account and provide either special secondary school or special junior high school courses to meet them, as determined by the length of time these children commonly attend school beyond the grades?

Again, let us suppose that a fair percentage of the children who finish the grades enter high school, and that of these a large proportion go through the course and graduate, but, finally, that only a few go on to college. Suppose further, that there is no higher institution of learning within two hundred miles of the city. Our concern now is to find out whether the schools should not be extended upward to meet this apparent need.

This line of reasoning suggests the procedure necessary for determining the extent and variety of the educational plan. The point is, the organization must be worked out with reference to the functions that ought to be met by schools. It is the business of the survey to get together the fact-basis with reference to which the functions are to be stated. As will be shown later, a research department will provide means for keeping many of these facts at all times practically up to date. Having already shown in Chapters II, IV, and V how to collect and interpret much of the information here suggested, we will refer the reader to the chapter on "Child Accounting" and the final chapter of the book for further suggestions.

Determining the most suitable administrative units. Having decided upon the principal functions that ought to be met by the schools, we turn to the question of a plan by which we may best administer to those needs. We have

[1] For this type of data the Census Reports are the source. See page 123 of the *Salt Lake City Survey Report* for a display of this kind.

already explained the functional basis of organization.[1] Here we must examine the schools to see if that theory is in operation in the present plan of organization. If so, then each single unified need would call for a single unit (or a number of coördinate units) of organization.

A list of the functions suggested above would include:

1. Care and training for children in general too immature to enter upon a systematic course of training. This would call for such an administrative unit as the kindergarten.
2. Systematic training in the foundations of citizenship. This is the function commonly assumed by the elementary schools. Whether it is to be an eight-year course or less depends on certain other facts; as, Will the children complete the course? Will they have training beyond this course? If not, what occupations do they enter and with what success do they pursue those occupations? Doubtless we should also add, will a shorter course help administratively in the handling of the children, in providing good teaching conditions, and in keeping them longer in school?
3. In the statistical forms given above (19 and 20) we noted that many children left school and entered work before the end of the eight-year course. If the evidence is clear that this situation could not be materially changed without a change in organization, then it is conceivable that a special function appears. This would be to provide proper training for the children who are to leave school so young. This is one of the functions claimed by the new administrative unit called the junior high school.
4. There are many who will enter the high school, and then go into trades and clerical and other occupations. If this demand is large it may call for a special school devoted to the task of training for the industries. If so, this would be cause for a special administrative unit.
5. Those who go through high school in preparation for higher training. This is one of the main functions of the general academic high school.
6. Many would go to college if they could. This demand, when large enough, or when capable of large development, calls for a junior college.

[1] See especially Chapter III, Section II.

Six distinct purposes. This brings to light six distinct purposes, each calling for a special program of training. Since the machinery for managing a program must be devised with reference to the character of the functions to be served, this would argue that these functions indicate the essential administrative cleavages in the school organization.[1] If the schools have these functions, and have not this administrative plan, then we should consider what changes are needed and the feasibility of effecting them.

In addition to these six main needs it would be easy to add others that will almost surely exist. There will be children in considerable numbers of distinctly low, and others of distinctly superior mentality, who will not readily adjust themselves to the ordinary school aims and rates of progress. There will be numbers of near delinquents. In larger cities there might be wisdom in providing special administrative units for dealing with these, and with other special groups. In any case the school machinery should be elastic enough so that some kind of adjustments to such needs could be made.

Is the machinery adequate in extent? It is not possible to go fully into the details of how to answer this question. Assuming that there is a demand for the six functions above described, then two points will need to be studied. One is, is the machinery adequate at all points, and the other is, are the units adequately coördinated so that there is unity and

[1] It is doubtful whether it has ever been proved that any given plan of organization is better than any other possible plan. This certainly applies to politics, religion, industry, and other social organization, as well as to education. What we are concerned with in our school survey is to know that the machine is designed with careful regard for the necessary functions. Step one is to find and define those functions as to character and extent, and step two is to devise a machine in terms of those functions. This viewpoint and this procedure are very different from those which begin with the assumption that the kindergarten, the junior high school, the six-three-three or six-six plan is the only sound plan, and then insists upon fitting the city to the machine rather than the reverse.

harmony in purpose and procedure throughout the system.

Let us assume that we have data to show how many pupils there are in each unit, and what the number ought to be if each unit is functioning adequately. For a method of assembling such data see Form 21. If these two sets of figures are not somewhere near alike, then some adjustment is needed.

To take a somewhat different approach, suppose we knew, for each attendance district in the city:

1. The number of pupils who leave school at each age by grades.
2. The number by ages and grades who receive work certificates.
3. The occupations in which these various groups are engaged.
4. The kinds of training needed to do effective work in those occupations.
5. The mentality of those who leave the schools.

We should then be able to say, for instance, whether the junior high school unit was adequate in extent, and whether it was organized with reference to its proper purposes. This illustrates how we should need to examine each of the administrative units of the system in order to settle the question of its adequacy.

Are the units of the organization properly coördinated? As to the matter of coördination between units our study becomes partly a question of the organization of curricula, but it is partly a matter of administrative adjustments also. The curriculum problem will be treated in Chapter IX. Here we are concerned with the administrative arrangements for carrying pupils along step by step through the system, each to his or her own best educational goal. We ask then, what are the conveniences by which a child passes from unit to unit in the system?

Must a child be perfectly regular in school, passing with a certain degree of proficiency through each year's work from the beginning to the end, or are there various routes of

travel which allow for the child's age, the time he is likely to quit school, his mentality, his occupational needs, his special

FORM 21. CHARACTER OF ORGANIZATION INTO ADMINISTRATIVE UNITS [a]

TYPE OF SCHOOL	NO. OF BLDGS.	NO. OF ROOMS	YRS. OF INSTRUCTION OFFERED	NORMAL AGES OF PUPILS	AVERAGE ENROLLMENT	PROMOTIONS PER YEAR POSSIBLE	PROBABLE NO. ACCORDING TO CENSUS REPORT	ENTRANCE REQUIREMENTS
Kindergarten.....								
Elementary.....								
Junior H. S.....								
Senior H. S.....								
Junior Col.....								
Industrial or Technical Schools.....								
Special Schools for								
1. Mental defectives...								
2. Blind.....								
3. Deaf and dumb.....								
4. Sick.....								
5. Crippled.....								
6. Delinquent....								
7. Continuation..								
8. Vocation.....								
9. Bright children.....								
10. Foreign children....								
11. Prevocational training....								

[a] Tables 41, 42, 43, and 46 in *The Boise Survey* illustrate collections of data useful in this connection.

interests, and his partial deficiencies? The latter we must demand of the system if our principles of organization are to be realized. A sixth-grade boy who probably will leave school soon ought to be sent on to certain courses in the junior high school, even though he may have failed to do some of his sixth-grade work satisfactorily.

The principle here suggested must be carried out at many points in the system, if the organization is made with reference to children. The dull child, the very bright child, the potential delinquent, the one who will leave at the age of fifteen, and the one who wants to go direct to a trade or clerical position, cannot travel the beaten path with the mass, nor can he travel at standard rates. Hence the demand for flexibility of entrance requirements and rates of progress in each school unit.

4. Organization into grades

The meaning of grade. In American schools the term "grade" has become firmly fixed as the name of a definite part of our elementary school organization. In all cases grade refers to a year's time in school, and to a fixed amount of the curriculum. This is a necessary and convenient background or framework against which children are organized for purposes of instruction. Such a system is good if it is flexible to the extent that the educational needs of children are fully met; it is poor or vicious when it has no such flexibility. Our first concern, therefore, is to know whether a grade is something to which all children must conform alike, or whether it is a grouping designed and operated in terms of the character and needs of the children.

What we need at the outset, if we are to study the efficiency of this aspect of the organization, is some means of detecting and measuring the extent and character of this flexibility. There are two ways by means of which flexibil-

ity may be provided. First, we may have variation in the amount of subject-matter to be covered by the grade. Second, we may break up the grade into a number of lesser units, thus increasing the number of points at which reclassification of children may take place.

There are many variations possible in applying these two principles and, further, there are various devices useful in propping up any given system.[1] The Batavia idea was to promote twice a year, but in addition, to provide extra instruction for those who tended to lag behind the class. The special room, promotion by subjects, the ungraded class, the opportunity room, and supervised instruction — all are effective supplementary devices when properly used in connection with a standard system of grading. It is with these ideas in mind that we should examine the grade organization of the system.

How to measure the efficiency of the grading system. Our first step will be to read carefully the rules governing promotion, and to gather facts describing the grade organization and the plan of promotion as it operates. These can be expressed in graphic form[2] so that the essential features of the plan will be seen readily at a glance. If one or both of the two principles above stated are not embodied in the plan in some form, then it is obvious, without statistical study, that the system is inelastic.

Our second step will be to turn to our grade-progress studies [3] to see whether there is a reasonably close correspondence between ages and grades. If there is much retardation, then we know that there has probably been much repeating, unless some other explanation of the retardation

[1] For a brief explanation of these principles, see the author's *Classroom Organization and Control*. Boston, Houghton Mifflin Company, 1918.

[2] For good illustrations, see Cubberley, E. P.: *Public School Administration*, chap. XVIII. Boston, Houghton Mifflin Company.

[3] See Chapter X.

can be found. Similarly, much acceleration will mean much skipping, unless the flexibility of the organization made it possible for the child to work on ahead of his grade, or unless maximum and minimum amounts of subject-matter were provided in each grade. While these figures will furnish us with a rough index, they have to be explained before we use them as a basis for criticizing the grading system.

The figures we want most are those showing, for each grade, the number of repeaters and the number who accomplished more than the work of a single grade within the year, and the reason for the irregular procedure. In other words, we want to see the extent to which the organization made special adjustments to meet the special needs of those who could not keep step with the normal group. Form 22 suggests the information needed for this study.

Provision for special adjustments. Such figures as these will indicate the extent to which adjustments were actually made, and to that extent will describe the flexibility of the grading system. It is not numbers of adjustments alone, however, nor merely the reasons for making the adjustments, but kinds of adjustments as well that measure flexibility. Accordingly we need figures showing what is being done for those pupils who for any reason have not fitted comfortably into the regular grade organization. How many of these children are in ungraded classes, in open-air rooms, in opportunity rooms, or in special schools, and how many are kept to the regular schedule of study either repeating or skipping. A few of these special types of children may be considered briefly:

1. Foreign-speaking children. Children who do not speak English with ease cannot keep pace with their grades unless they are especially bright or have some special instruction. We want to know how many such children the city has, where they are located (school and grade), and what means

FORM 22. SHOWING DISTRIBUTION OF THOSE REPEATING OR SKIPPING GRADES, AS TO REASONS FOR THE IRREGULAR PROCEDURE

ADMINISTRATIVE UNIT	GRADE OR CLASS	ENROLLMENT	NO. REPEATING MAINLY BECAUSE OF									NO. PROMOTED MORE THAN ONCE IN YEAR BECAUSE OF				NO. MAKING NORMAL PROGRESS
			Mentality	Physical defects				Delinquency	Language defects	Others	Total	Mentality	Late Entrance	Others	Total	
				Blind	Deaf Dumb	Ill	Crippled									
Kindergarten																
Elementary																
Junior High																
Senior High																
Junior Col.																

are used to keep them moving through the curriculum at a normal rate. Where the numbers are large enough a special class, or even a special school, may handle these children separately, the aim being to do away with the language handicap as quickly as possible, and then to adjust them gradually to the regular grades.

2. The dull child. We should want to know how many really dull children there are, and how they are being handled. The results of mental and educational tests, which we should expect to find in the research department, should provide us with these figures. We want to know whether these children are being eliminated, or if not, what is done to keep them moving always forward instead of repeating. The extreme cases should go to a special institution, but the large number must receive some special treatment. What most of them need is in large part a different curriculum and a special teacher.

3. The very bright child. The very bright child is often permitted to waste a large part of his time simply because he gets on easily and does not disturb the school program. We should know how many such children there are, and what is being done to provide them with a proper educational load. Some kind of special room or outside project work must in some way make it possible for such children either to do more than average work in a given grade, or to move at a greater speed through the grades.

4. The potential delinquent. Children not infrequently become retarded because they do not conform to social standards, and so spend too much energy on other things than study. There are no more important children in a city than these. They must not be eliminated to become delinquents. This unsocial tendency is often aggravated by the necessity of conforming to the regular program. We need to know whether the grade machinery will permit of special

adjustments for such cases. Possibly a parental school with a special curriculum is the solution for extreme cases.

5. The physically defective. The cripple, the anemic, the tubercular, the partially blind, the epileptic, the deaf, and the dumb exist in every city, and numerous reasons argue that these should not have to conform to ordinary grade organization. The open-air classroom, special methods, special classes, promotion by subjects, special curricula, and little conformity to regular grade standards are the demands, and the survey must see how many repeaters belong to this type.[1]

Chapter summary. We have begun our examination of the internal machinery and management of the school system by looking first at the general plan of organization of the children. We begin with the children and their educational needs, and in these terms look to see how many and what kinds of schools and classes the city has provided. If the machinery by which the children are grouped for instructional purposes has been designed with reference to the needs which we have found to exist; if the parts of the machinery are coördinated in a way that meets the need for shifting from unit to unit in the system; if the machinery for moving from point to point, or year to year, in a given unit is elastic in respect to the peculiar differences that exist among children — then we may consider that the organization, so far as school and grade machinery is concerned, is sound.

The test, however, is only partly applied when we have gone this far. Until we know something of the actual curricula provided in these various units, and something of the organization of the subject-matter designed to meet the various general and special needs described above, we cannot

[1] An examination of the bases of promotion is a detail which must not be overlooked. For methods of handling this, see Chapter XII.

be sure that what appears to be a sound organization of the children is really effective.

Furthermore, it is not merely a knowledge of the curriculum provisions alone that we still need. We need to know how the curriculum is being administered, whether the children are being kept adjusted to the machinery as their needs dictate, and whether the children are in school and making progress. These aspects of the problem will be dealt with in later chapters, and each will provide us with particular angles from which the problems of this chapter may be viewed.

QUESTIONS FOR CLASS DISCUSSION

1. What do you consider the merits of the six-six, the six-three-three, and the eight-four plans of school organization? See *Augusta Survey Report*, chap. v.)
2. What factors would you take account of in recommending a junior high school organization?
3. How would you proceed to determine whether a city should support a junior college?
4. What evidence have we that the term *grade* has a very loose meaning? What effect will standardized tests have upon this term?
5. What do we mean by flexibility in a grading system? Is promotion by subjects recommended for the elementary grades? Consult survey reports on this point.
6. If it had been decided to extend the system of kindergarten training, how would you, as superintendent, proceed if you had only a limited amount of money, say for adding one building or its equivalent a year? (See *Survey Reports* of Salt Lake City, p. 72; Portland, pp. 115 and 202; Philadelphia, vol. III, p. 1; San Francisco, p. 97; Elyria, p. 146; Memphis, part II; and Grand Rapids, 25.)
7. How do you distinguish between the purposes of the senior and junior high schools? (See *Augusta Survey Report*, p. 94. Also *Baltimore Survey Report*, vol. III, parts I and II.)

PROBLEMS FOR INVESTIGATION AND REPORT

1. Draw up a plan, after the pattern of Figure 3, for a city school system with which you are familiar.
2. Studies may be made of individual schools covering the points called for in Form 19, or any of the other Forms in this chapter.

3. Prepare a schematic representation of the plan of grading and promotion in use in some chosen city.
4. Examine the racial and occupational statistics for a given city and prescribe the types of schools needed. In the light of census and school-attendance statistics for that city, what would be the extent of each type of school?
5. Gather the facts necessary to decide whether a junior high school plan of organization should be introduced in a given small community.
6. According to the location and attendance at kindergartens in a chosen city, what seems to be the purpose of that organization unit?
7. Compare the early with the most recent survey reports on the basis of their criticisms and suggestions affecting grading and promotion.
8. Make the same sort of study of recommendations affecting the junior high school.

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CHAPTER IX

THE CURRICULA

1. The problem of this chapter

Connection between organization and curriculum problems. In the above chapter on organization we proceeded on the theory that types of schools and promotional machinery must be devised with reference to the educational needs of the city. There we first ascertained the needs, and then judged the efficiency of the organization in the light of those needs. Our approach in the study of curricula must be exactly the same. Our question is, first, What kind of instruction is demanded by the nature of the school population? Second, Do the curricula meet those needs? If not, then we must show what changes are desirable.

The organization of curricula, and the plans by which children are organized into schools, grades, and classes, both being drawn with reference to the instructional needs of the children of the city, obviously must coincide. Poor adjustments in the one case will indicate poor adjustments in the other. So far as the organization of curricula goes, therefore, we shall be dealing still with the question of whether the groups (school, grade, and class) are satisfactory, and whether they are so coördinated that movement from group to group will be an easy matter.

Presumably the group of children who constitute a school are reasonably homogeneous in respect to the aims and purposes of the school. The homogeneity of a grade group depends, similarly, upon the aims and purposes of instruction within that grade. The homogeneity of a class group must be relatively large, since widely divergent aims could not

easily be attained at the same time in a single group. It is clear, then, that school, grade, and class have reference to certain groups of children who have been brought together because they have similar or nearly similar educational needs. Accordingly, then, if a curriculum is properly developed it must embody aims that correspond to these needs, and it must be organized with reference to the needs and capacities of these various groups.

What is a curriculum? Curriculum is by no means easy to describe or define in brief space. The author has attempted it elsewhere,[1] and the following quotation is believed to meet our needs at this point:

1. A curriculum is a body of information and exercises (physical, social, æsthetic, moral, intellectual, etc.) to be utilized in the training of children.
2. The materials and exercises so used are chosen from among the facts and processes known to have value to society. (Society is composed of children as well as adults.)
3. There is vastly more useful information and there are vastly more useful activities available for curriculum purposes than can be used. Hence the necessity for selecting.
4. Each bit of information and each exercise should be selected for a certain desirable and well-defined purpose, which purpose will be better served by that information or exercise than by any other.
5. Information and exercises must be well balanced with respect to the essential recognized intellectual, moral, political, occupational, æsthetic, and physical values in life. In other words, the curriculum must not be one-sided.

From this it is clear that our curricula are not dead, formal, and unchanging, but quite the reverse. They offer facts, but facts chosen more with reference to the needs of a living child who is to become a member of a modern social group than with reference to the bare logical relations which

[1] *The Boise Survey*, p. 65. New York, World Book Company, 1920.

exist between facts themselves. But facts are not all. A curriculum of any kind calls for action, since the child is an actor and the adult world is so full of action. Since they are made up of the facts and activities common in the life about us, two curricula may vary greatly in their content and still both be good, because there are so many facts and so many activities from which to draw our materials.

Further, it will be seen that the materials of a curriculum must be chosen with reference to specific, and not vague and general ends. There must be a definite reason for every fact and exercise included, and that reason will rest back, finally, upon the nature of the child, the nature of the physical and social world in which the child lives, and the nature of the child's relationship to this world. It demands, too, that it shall serve to educate the entire child, and not his memory alone or even his entire mind alone.

How to judge a curriculum. This is all very general, and perhaps a bit philosophical. Surveys must judge curricula, and state what is wrong with them and how to improve them. This characterization of curricula, it is realized, gives us but a clumsy sort of measuring-stick, and one difficult to apply. It is always much easier to measure with a yard stick than with a set of general principles, yet when principles are the only measure we have we must try to apply them. Political and religious as well as educational institutions have had to work in this way. At present we have no exact means for measuring curricula. What we need to do, then, is:

1. Arm ourselves with the best guiding principles.
2. Get as good a description as possible of the children to be taught.
3. Get a corresponding description of the community and its life.
4. Analyze these facts in a way that will show the kinds of subject-matter the children need.
5. Check the curricula in use against these needs.

If the exact curriculum needs of each child in a given city could be listed we should see, for the various age groups, a very great similarity in the main features, and a great variety in details. For instance, all children must learn to read, write, spell, and stand erect. To accomplish such aims a large amount of material will be equally useful to all children alike. Yet, in detail, this common core of materials must be supplemented differently for different children. A group of foreign children will need many special additions to and modifications of their materials if their curricula are to function as the above principles dictate.

For the elementary school, however, this common core is large, and the variations from it are relatively few and small as compared with what will be needed in later years. Hence, in the secondary school, we must offer curricula that recognize that the superstructure which is to be built upon this common foundation must have reference to the special needs and capacities of each individual. The demand for specialization and differentiation to meet these special needs can only be defined when we know the people and how they live.

Thus it will be seen that we are to judge a curriculum with reference to the needs it is to fulfill. These needs, we see, depend not in great part upon facts in their relationship to other related facts, but upon facts and activities in their relationship to a child — a child who is now living an important life of his own, who at the same time is growing up to active membership in a society of adults, and who lives now and must continue to live in this physical world.

The purpose of this chapter. In what follows we shall attempt to show how to examine the curricula of a school system, and how to show what is good, what is poor, and what changes are needed to bring the curricula up to their proper functions. We will try to show how to apply the above principles, and how to determine the need for differen-

tiated courses and special modifications to meet certain special needs, as these have to do with the choice and general organization of subject-matter. The administration of the curricula we shall leave to later chapters.

2. Determination of curricula needs

The child a factor. Above we have set down and explained five principles to be used in selecting materials for use in courses of study. Here it will be our purpose to show how to utilize these principles in working out an answer to the question — what are the curricula needs of a given city? Even a casual reading of these principles will make it clear that the child is one important factor that must be considered. How to take the child into account is the question.

At the outset we must keep in mind the great fact of individual differences among children. These differences are great in number, as well as extent. Some of them have much to do with the selection of materials for courses of study. What these are, how to find them if they exist, and how to make use of them in building up courses of study is our problem.

The demands of society a factor. A second factor referred to in our principles is the demand of society upon the child. Whatever the child is like he must live according to the institutions, ideas, customs, and ideals of society. He cannot be too different from others in his way of living without being dealt with. Copernicus was too different intellectually to make satisfactory progress in the society of his day. The anarchist is too different politically, as is the thief in his notion of property rights, to make satisfactory progress in modern society. Looking at it in another way, the man who understands, sympathizes with, coöperates with, and contributes to the needs of society is held in high

esteem. Just what facts and exercises should we provide in order to give the child this better contact with society?

Facts about children that are needed. The individual differences among children that are of importance in this connection are: differences in age, sex, mentality, mother tongue, morals, training, social inheritance, probable extent and character of schooling, and physical differences.

Some of these would call for special curricula only if they exist in exaggerated form. Examples are blindness, or other extreme physical defects; such immorality as to warrant classification as delinquents; difference of several years in age, the number depending on whether adolescence is involved; and such difference in mentality as to separate the child as much as two years from the child who progresses normally. Some of these differences would call for entirely different curricula; others for modifications of the regular courses or for differences in parts of courses only.

How to study these differences. To study these differences we need certain facts:

1. Facts as to age. The particular facts we need as to age are: How many children are there who are decidedly old or decidedly young for their grade or class? These children probably need attention, either in the matter of what they are studying, or in the way in which they are studying it. To secure these facts we need a complete age-grade distribution table for the children of the city as a whole, arranged by types of schools, and by buildings. The technique of such a study is explained in Chapter X, and need not be set forth here.

2. Facts as to sex and mentality. The facts we need about sex we know in advance, but not so with differences in mentality. These latter are best obtained by the use of mental tests. Group tests can be given without great expense, and for this purpose will reveal the important differences in

mentality quite effectively. One form, suitable for the display of such data, would be suggested by the age-grade table, in which we simply substitute mental age for chronological age. If such displays are made for each building, by grade and class, the extent of the special curriculum demands due to mental differences will be very clearly shown.

3. Differences in training. Differences in training may be expressed in years, and in terms of the results of achievement tests. The use of such tests is explained in Part III of this book, to which the reader is referred.

4. Differences in social inheritance. Inheritance differences that may count are suggested by race, language, and parental occupation. These facts can be assembled from the child's census card. A suitable form for the assemblage of data of this type is suggested by Form 23. Such a display could be made by grades, by schools, or by classes, as desired.[1]

5. Differences in probable future training. Differences in the extent and character of training the child is yet to receive cannot be told with certainty, yet by the time he has reached the end of his elementary school the child's own statement of purpose is of value. The parent's statement is another useful index. The child's mentality score, and particularly his special aptitudes; the general financial and social status of the family; and the health and general physique of the child — may also serve as guides, and should be studied by teachers and principals in connection with the problems of educational guidance and special course of study adjustments.

6. Social and moral differences. Smaller cities do not maintain schools for delinquents, but there is need for such,

[1] For tabulations of this sort, see Table 47 in *The Boise Survey*, also the author's *Spelling Efficiency in the Oakland Schools*, Bulletin no. 9 (1915), Oakland (California) School Department.

and where it is possible to meet the need locally this will constitute another special curriculum problem.

7. Physical differences. Adjustments in instruction for the tubercular, the blind, the deaf, the dumb, and the crippled child are needed in most cities. Facts covering such cases can be obtained from the various school records, and their compilation seems so simple that a sample display need not be presented.

FORM 23. SHOWING DISTRIBUTION OF CHILDREN WITH RESPECT TO THEIR NATIVE LANGUAGE, AND THE OCCUPATIONS OF THEIR FATHERS

MOTHER TONGUE	OCCUPATION OF FATHER								
	Agriculture	Commerce	Mfg. and Mech. Arts.	Transportation	Public Service	Professional	Mining	Labor	Retired or deceased
English....									
French....									
German...									
Italian....									
Portuguese.									
Russian...									
Oriental...									

It seems unnecessary here to go into further detail as to how to assemble these facts for study. It is mainly simple counting from records or from test results. The point here is to show how to bring our principles of curriculum making to bear in the curriculum survey. It will be seen that our principles lead us to a study of facts. Facts about the chil-

dren and facts about the social and physical world. We have shown here what facts about the children we need, and suggested ways for studying them. In Chapter II we have shown how to study the community life in which the child is to participate as a citizen. Bringing these together provides us with the fact basis upon which a curriculum is to be judged by the survey.

Interpreting these facts. How may we interpret these facts so that we shall be able to make specific curriculum prescriptions?

Even without detailed study of these facts we know that the needs of children are in general more alike than they are different, for the reason that, in general, children are more alike than different, and the world — social and physical — is in many respects the same everywhere. The child everywhere loves play; everywhere his world is largely a sense world; everywhere he is a great actor and deals with things present and things concrete. Similarly, society everywhere demands that a child shall be able later to earn his own living; that he shall comply with social usage in matters of speech, dress, manners, and cleanliness; and that he shall comply with laws and customs. It hopes, too, that he will be coöperative and add to the total of human achievement. As to the demands of the physical world, we have the same thing. The phenomena of weather, climate, soil, animal and plant life, minerals, and land and sea touch us all, either directly or indirectly, and though it is cold in one place and hot in another the laws of nature that lie back of heat and cold are constant everywhere. This means that, corresponding to these common facts touching the child in his relation to the world are common curriculum needs.

As a result of our experiences we have in general agreed that the first six to eight years of school life should be devoted to the acquisition of such growth, information, habits,

experiences, and ideals as will be useful in meeting the needs here suggested.

Meaning of smaller differences. In a building of any size there will be a few children who will differ from the majority group, however, in one or more of the ways above mentioned. Some of these differences will call for curriculum adjustments. Age-and-grade studies show some children who are retarded more than a year, and others who are more than a year ahead of their classes. This usually means mental differences. The curricula ought to be modified to meet such needs. More subject-matter and wider variety must be provided for the brighter children, while the slower ones may be kept strictly to a bare minimum, as suggested in Chapter VIII.

Some of the schools will likely contain children whose native tongue is not English. For these, special adjustment in language courses must be provided. Occasionally we find a child much older, both physiologically and chronologically, than his class. Such a child should not be held to the common course of study. If ill health, or a foreign tongue, or lack of training are the causes, the adjustment should be made accordingly.

Some of these adjustments can be made without separating the child from his class; some even by a little personal attention by the teacher, after class time. Others will call for an administrative adjustment, such as an ungraded room, a modification of promotional plans, an assistant teacher, or possibly a bit of home work.

Meaning of larger differences. A child who is nearly or quite blind, or deaf, or dumb should certainly not follow the ordinary courses, even though we accept the general theory that it is best for all such abnormals to live as normally as possible.[1] The point is that children with such handicaps

[1] For description of a gross misinterpretation of the meaning of deafness for curriculum adjustments, see *The Portland Survey*, p. 131 ff.

must be provided with specialized instruction, if we expect them to become like other people. Technical grammar, for instance, may receive little emphasis, and hand-work may be given large emphasis. Special training in lip reading would surely be more to the point than anything else for the deaf.

A child who is feeble-minded should have special training in habits of personal conduct, such as how to dress, eat, keep clean, speak, follow simple directions, and work with the hands. That excludes grammar, spelling, most of arithmetic, writing, composition (except oral), and much of all other formal studies. We have in our schools a few feeble-minded, and many who are virtually morons and for whom the common-school courses are not suitable.

The schools contain many children who are near-delinquents. We must keep in mind that practically all the children in our schools for delinquents were formerly public-school pupils. One reason why they became delinquent is that the school did not fit into their scheme of things. Many of such children are found to work well when put at a bench, in a garden, or at a machine. There is no one curriculum-adjustment that can be suggested as best suited to the potential delinquent, for the reason that there is no single cause for delinquency. Our adjustment must get at the causes which seem to be leading toward delinquency, and then the changes in instruction can be prescribed.

Some children will leave school as early as possible, while others will go on to higher institutions of learning. All alike must be equipped to solve the common problems of life and, with the exceptions noted, the elementary school courses are designed to provide for this. Beyond this minimum a new factor enters, the factor of future training and occupation. Here we find large differences. These differences create new curriculum needs. Different courses must be provided for those who will go only to high school, on the one hand, and

on the other for those who will enter college. How different, and in what ways, are questions to be settled in the light of what each group means to do in choosing an occupation. If a girl is looking forward to a career as a housewife and does not intend to go to college, the courses of study should not compel her to spend her time on such studies as Latin and algebra. Housekeeping would be better from every standpoint. The boy who will go to college, and who may reasonably hope to become a linguist, may very properly study Latin and French, but if he expects to stop short of college and become an automobile repairer he will not need Latin, while a knowledge of tools, materials, and machines will be more to the point.

Curriculum needs as an instrument of measure. In this section we have attempted to convert our curriculum principles into a practical survey instrument. We have shown how the use of these principles calls for facts. We have suggested what facts are needed, and how to assemble them, and we have illustrated briefly how to interpret the facts when assembled.

It will be noticed that our first step has been to construct a suitable tool or instrument for measuring or estimating curriculum values. It will be noticed, further, that we have developed this tool out of the needs for education, and not out of a study of courses as they exist, or out of curriculum traditions. This tool is a set of principles, to be sure, and not purely objective in character. Back of the principles are certain postulates. We are not absolutely certain that these postulates are sound, because we cannot prove them. This we can say, however, that in the light of our best knowledge and belief they are sound, and therefore we use them to build upon. Accordingly, our problem is to take care in our study of the facts, and in drawing conclusions from the study to see that we do not apply our instrument badly.

The above analysis brings out certain problems which suggest the plan by which we may proceed to survey the curricula of a given school system. Clearly the elementary-school problem is different from that of the intermediate and the secondary schools. Provision must be made for the bright and the dull, and for other special variants from the group norm in the elementary school. This is partly a question of administration, but in no small part it is also a question of subject-matter. Differentiation of courses above the elementary school is an obvious necessity. Our further purpose will be to show how to apply our survey tool to the study of the curricula of the elementary, intermediate, and secondary schools respectively.

3. Surveying the elementary-school curriculum

The printed courses of study. In smaller cities outlines of the courses of study are usually published together as a small pamphlet called the course of study. In larger systems outlines of the different studies are frequently published separately. These outlines should be our first point of contact with the curriculum as it is operating. What should we find in such outlines? The answer to this may be partly a matter of opinion and preference. The following seems to the writer to be the proper functions of printed courses of study.

They have been prepared for the information of teachers and others having to do with instruction. They should set forth the general aims of the schools, and should explain how the various school activities are to contribute to the accomplishment of these general aims. They should state clearly, usually grade by grade, the specific aims of the separate courses of study. They should present a brief outline of the facts and exercises to be used as the subject-matter of each course. They should indicate points of emphasis, and

should show how each course is to contribute to and utilize other courses. They should offer suggestions as to how to handle some of the more difficult teaching problems (as, by the introduction of projects), should list useful supplementary materials, and should suggest professional reading for the teacher. They should indicate a minimum and a maximum time allotment for each subject in each grade.

The outlines should be printed in good form. As to organization, some prefer that these outlines be arranged by subjects, others that they be arranged by grades. The latter may seem more convenient, but it really is not if we expect the teacher in one grade to keep in touch with what is going on in other grades. The subject arrangement is convenient enough, and makes it easier for the teacher to keep this perspective for what she is doing in her own grade.

If the printed courses of study measure up to this set of demands we shall be able to get at the essential facts without great delay. Of course, we would still have the task of finding out how effectively the courses were being administered, and how satisfactory is the equipment for handling the courses.

Description of curricula. Let us assume that the children of the schools have been studied in accordance with the plans outlined in this chapter, and that such facts about the community as are brought out in Chapters II and VIII have been assembled. Our next step is to study the curricula in the light of these facts. To do this our first need is for a general description of the courses offered. This may be obtained from the printed courses of study, or syllabi, and can be seen readily when summarized graphically, as in Figure 8, which shows what courses are offered for each of the grades in the schools of Oklahoma City.[1]

[1] *Courses of Study and Manual for the Primary and Grammar Grades*, Oklahoma City Public Schools, 1920. Courses for manual training and nature study were not outlined in this bulletin.

Such a graphic representation tells what subjects are taught in each grade, but does not indicate the aims, the content, the coördinations between subjects, or the relative amount of time devoted to each. Neither does it indicate by what means adjustments are made to meet special cases of rapid- and slow-moving pupils, nor does it indicate what is available for the physical, mental, and moral defectives of the city. Here we have merely a picture of the regular courses for normal children.

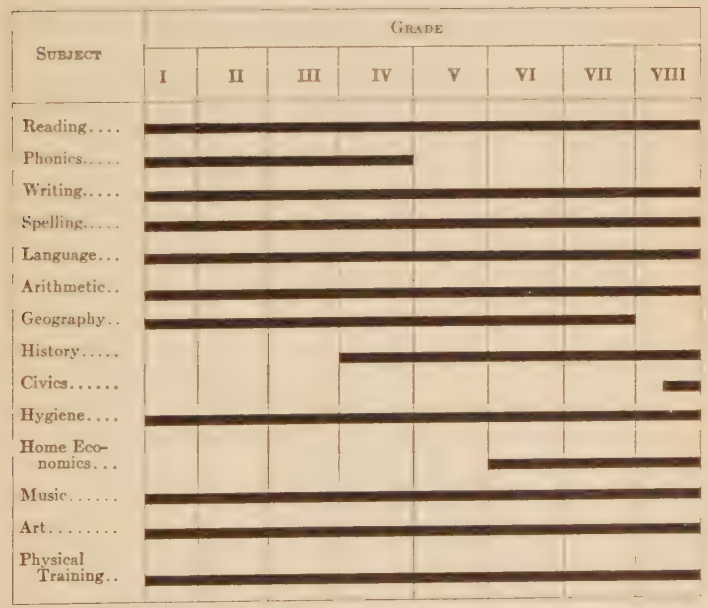

Fig. 8. Showing by Grades the Subjects Offered in the Elementary School Courses of Study for Oklahoma City (1920)

The test to be applied. In this chapter we wish to explain how to test the subject-matter and its general organization only. How can we apply the test we have explained above

in the form of guiding principles of curriculum making?

First, we should examine the aims set forth for each course, and their modifications through the grades. The courses must aim to do the right things or they cannot be good courses. Second, we must examine the outline of subject-matter because that is the means by which the aims are to be attained. Third, we must examine the distribution of the subject-matter through the grades. The application of our principles to these three problems is our necessary procedure. Here we shall offer only a few sample illustrations of the mode of procedure by showing how to examine the elementary courses in reading and hygiene, with a few comments on other subjects.

Reading courses. Reading is perhaps more important than any other single course offered in the elementary school, since most all other studies can only be pursued by means of reading. The aims of this branch ought, therefore, to be clearly and fully established, but we are quite aware that they are not. Many schools are still following this or that "system," which is a pretty sure indication that they are following some unsound procedure which has been devised by a person with just one idea about reading.

What is reading in the elementary school curriculum for? First, to give a child a mastery of the art of reading; second, to enable the child to gain information and pleasure; and, third, to enable him to entertain others. Other subordinate aims could be mentioned, as development of taste for good literature, voice training, training in correct speech, training in clear and accurate pronunciation, and training in expression. These can scarcely be named as distinct aims, since they are almost sure to be attained incident to the attainment of our three chief aims just stated.

What kind of lessons should be given in order to accom-

plish these three purposes? This will best appear from a brief analysis of these aims. The act of reading includes not only the recognition and pronunciation of separate words, but an understanding of their meaning in combination. Reading to get information is a very broad aim, and to be of value we should decide what kind of information we need or want to get. To do this we should recall the earlier part of this chapter, in which we discussed certain general curriculum principles and aims. With this discussion in mind, it is clear that in reading we have a choice opportunity to gain information looking toward all the essential school aims — physical, social, æsthetic, intellectual, occupational, and political — or, in other words, information about ourselves as responsible actors in a social and physical world. Reading for the entertainment of others is not one of the larger purposes, but can be included if it is realized that the world demands no great amount of it.

Reading aims and teaching methods. The selection of subject-matter essential to the achievement of each of these aims will depend upon our notion of how we are to attain them, as well as upon our detailed interpretation of them. Can one best learn to read by actually reading, or by first mastering the mechanics of reading, or by a combination of the two? The literature arguing the merits of each of these viewpoints is large.[1] At present the mechanical approach may not be fully discarded, but *very much reading* is now regarded as basic. Phonics contributes as a separate course in many cities; in others it is made a part of the reading course. It can contribute, but it is at best only a minor means and must not be made an end in itself. We read, not merely to pronounce, but to get ideas. If the true end, getting ideas, is not associated with the process as a mo-

[1] Stone, C. R.: *Silent and Oral Reading* (Boston, 1921), gives an excellent discussion of the whole reading process, and a bibliography.

tive we can hardly regard the process as psychologically sound.

Again, if we are to read mainly for skill in reading and for ideas, then certain other suggestions as to content are obvious. Clearly we should emphasize quantity of matter, and a thorough understanding of the matter read. If reading for entertainment of others is not a major aim, then oral reading should leave ample time for quantity and thoroughness in silent reading.

If reading for ideas is the central purpose of reading, it is clear that we need a very wide variety of subject-matter. Variety in information may furnish the child with factual contacts with almost every type of human activity, with every aspect of the social and physical world, and with materials which furnish suitable stimulus to every sort of native impulse or predisposition which a child may have. Further, by selecting material that is beautiful, clear, and forceful in its literary form we may hope to establish tastes of the right sort.

Applying these standards. We could say then that this subject in the curriculum is well cared for when the above aims are clearly evident in the materials selected, and when the arrangement and amount of material is adjusted to the amount of time available for the course, to the child's interests, and to the amount of reading knowledge he possesses.[1] This calls for much reading matter at all stages, some knowledge of the mechanics in the early grades, wide variety of content and literary form with emphasis on excellence, and for selection at all points with reference to the child's skill in reading and with reference to his interests. Our inquiry then, is, do the reading courses, including supplementary materials, conform to these demands.

[1] The study of teachers' marks will afford an important check at this point. See Chapters XII and XIV.

Health instruction. Health instruction may be named here as a second course that ought to be offered in all grades of the elementary school, because health is the center of one of our very most essential educational needs. We offer physical training, hygiene, physiology, organized play, and perhaps parts of civics, in large part to the end that the child may know and practice such rules of living as will best conserve and develop his physique.

Our concern in a survey need not be with the title, but rather with the content of the courses. It is not the number of courses either, but the functions served that is important. In looking for the embodiment of the physical aim in the curriculum, then, we may need to examine more than one course. If so we must look especially to see how the several are coördinated, since we have one central aim toward which they each contribute.

The aim of such instruction, based upon the function to be served, is to provide the child with certain knowledge, and with certain habits and ideals touching matters of personal and social hygiene. It is not facts about anatomy or physiology or hygiene that are wanted, or about pathological matters alone, but all these in their bearing upon healthful living.

The aims of such studies as these are likely to be easily apparent in the subject-matter that is in use. If the textbook deals exclusively with any one of these sets of facts, and that without the use of drill and exercises in the application of the facts in conduct, we know at once that the course is bookish and formal.

Kinds of subject-matter needed. To realize these aims, what should the course provide in the way of information and exercises? If the whole problem of health protection and physical growth is the field, we shall need enough knowledge about the human body to make it possible to observe

nature's laws in matters of food, exercise, rest, sleep, dress, and cleanliness. Further, we shall need to know how to tell whether or not these laws are operating normally, and what to do when they are not. That is, we shall need some facts about anatomy, some facts about physiology, some facts about symptoms of abnormality. In addition to this knowledge, which is finally crystallized out in the form of right rules of living, we shall need practice which will establish right attitudes toward clean and healthy living and sound habits of living according to our rules.

When the specifications for these demands are written out in detail, we have to decide what facts about anatomy, physiology, growth, and illness; what rules of living; and what attitudes and what habits we shall teach, because the possibilities are almost limitless. There is no exact way of making these selections. We must be guided by careful reasoning. With our aim, function, or need in mind, what facts and habits will contribute?

It is not possible to go into detail here, but any such inquiry as the above will, if carefully pursued, guard us against too great emphasis upon facts in isolation, particularly facts of anatomy. It will lead directly to facts about how to nourish the body, how and why to keep clean, how and why to play and sleep and rest, and how to recognize fatigue, lack of nourishment, weakness, and disease. It will acquaint us with our worst enemies among insects and bacteria, and teach us to fight them. Also, it will lead us to take a positive and aggressive attitude toward all matters of hygiene and sanitation. It will establish prejudices against unsupervised food markets, and in favor of well-established community machinery for health protection. Besides attitudes, it will drill children in matters of posture, walking, and breathing, and the care of teeth, eyes, nose, throat, nails, hair, and skin, until firm habits of right living will have been fixed.

Coördination with other courses. In passing, it should be pointed out that elementary science is a subject that should be provided for, and that in the course on health instruction, the aim of which is different from that of science or nature study, there is opportunity to contribute substantially to the aims of the science course. In the latter the aim is to familiarize the child with a wide variety of facts and laws about the physical world. The health course does this same thing, within limitations, and then goes further by training the child to behave with respect to some of those laws. The means of coördinating such courses should be carefully examined.

In the health course we are not teaching anatomy as an end alone, but with a view to exercising certain controls. We are not learning the facts about digestion as an end, but as a means to control of food selection, preparation, and rules of eating. The fact that this additional purpose of applying the knowledge is attached need not prevent the course from contributing liberally to the ends of the science or nature-study courses.

Other courses. In spelling, scientific study has determined with fair degree of exactness what the right subject-matter includes.[1] For the grades it includes only about two thousand words, certainly not beyond three thousand, and these are the common words used by ordinary people in writing letters and keeping accounts and memoranda. The aim is a mastery of a few words, roughly in the order of their need in the different grades, and the establishment of an interest in observing words as one meets new ones. Furthermore, it is written and not oral spelling that is needed. The course should therefore be brief, and it should be conducted

[1] Such studies as those of Ayres, Jones, and Cook and O'Shea have furnished us with very satisfactory criteria to use as a basis for judging spelling content.

in connection with all written work, quite as carefully as in a separate exercise, to the end that little time may need to be set apart for spelling as a separate study.

The aim of writing is a plain legible hand, written with good speed and with ease and comfort. There is little need for great haste in learning to write until the child needs to write. Beautiful or fancy pen work may be part of the drawing course, but not part of the writing course.

These sample descriptions will not suffice to provide an adequate means of measuring the efficiency of the elementary curriculum, but they will serve to illustrate the method by which one may examine the merits of the different branches of study as taught in the schools.

4. Surveying the junior high school curriculum

Purposes of the junior high school. As pointed out in the last chapter, there is often good reason for shortening the general elementary school course to six years, and introducing a distinct administrative unit covering the succeeding three years. The justification for such a plan is based upon the need for some differentiation in the courses offered, and for some modification of school aims and management. The need for such differentiation is claimed by many educators to be a general need for all children, since an adequate general foundation can be laid in the first six years of training. No one has proved, in absolute terms, that either view is correct. The experiments in the direction of such reorganization are increasing in number, however, and so far no serious reasons have been offered in opposition.[1] To the

[1] It cannot be expected that all experimenting in school administration will be highly rational. Our procedure is bound to be largely empirical, and many of the experiments, as such, will be largely worthless. Much of what is now called junior high school is such only in name. A survey that finds a real experiment under way should study it as an experiment.

contrary, good psychological reasons can be advanced for the junior high school form of organization.[1]

If the junior high school plan has merit over the old plan, then we must assume that it has something new to offer. The place to look for this new factor is in the scheme of organization and management, and in the curriculum. By an examination of the machinery of organization and operation and the courses of study we should be able to say whether the school offers something new and of worth. If it does not, then it must be judged largely with reference to what it is costing and in comparison with traditional plans, and called by its right name.

Curriculum aims. Under the traditional plan of organization the general educational foundation was assumed to be laid during the first eight years. Under the new plan this is reduced to six years. Our first inquiry then is, what is it proposed to introduce as a new purpose of instruction. Here we must turn to the printed courses of study, to the textbooks in use, to supplementary materials, and perhaps also to the classroom to find precisely what new elements have been introduced. Under the old plan the aim of the courses was to contribute to the purposes above stated. It made no attempt to anticipate any future occupational needs, nor to any extent did it offer a choice of subjects at any point [2] or, in other words, opportunity for intellectual exploration.

If the new aims are different from this, then new subject-matter or new courses must be introduced, regardless of the changes made in buildings, classification of pupils, promotion

[1] See especially the recent book by Pechstein and McGregor on *The Psychology of the Junior High School Pupil.* Boston, Houghton Mifflin Company, 1924.

[2] Many schools do offer elective courses in grades 7 and 8, have the work all departmentalized, promote by subjects, and pay some attention to extra-curricular interests without changing the general administrative plan in the least.

machinery, student management, the use of advisory systems, social center work, teaching force, and facilities for instruction. The new aims which should be clearly evident from the character of the courses available are:

1. To provide an opportunity for intellectual exploration.
2. To provide opportunity for exploration with reference to future occupational interests, occupational capacities, and occupational possibilities or demands.
3. To broaden and enrich the offerings looking toward the enlargement of the personal and social self.[1]

These are the special new ends with reference to which the organization discussed in the last chapter must be examined.

Background for checking aims. As suggested in our study of elementary school courses, we should get a clear picture of the courses before us. This may be done by checking the courses offered against the following list of titles, which is intended to suggest a wide variety of intellectual, occupational, social, and aesthetic interests. The purpose of the list is to suggest concrete ends — some looking toward higher academic, technical, or professional studies; some toward definite occupations; some toward personal and social development — amidst which the pupil may be granted some freedom of choice.

It is not presumed that any except very large schools could provide for all the specific ends suggested by this list. If one will examine the stated aims and titles of the courses offered, however, keeping in mind the rich possibilities which this list suggests, he will have measured the curriculum aims against what might be regarded as an ideal. Of course, one point to keep in mind is the amount of freedom

[1] Through the proper enlargement and adjustment of courses to these ends it is insisted that attendance will be increased, that economy of time and better scholarship will result, that discipline will be improved, and that costs will not be increased. The survey would be interested in finding any possible evidence on these points.

LIST OF POSSIBLE JUNIOR HIGH SCHOOL INTERESTS

1. Interest in higher training
- English
  - Composition
  - Literature
- Foreign language
  - Ancient
  - Modern
- History and Civics
  - Civics
  - World or general
  - Ancient
- Mathematics
  - General
  - Algebra
  - Geometry
- Science
  - General
  - Biology
  - Physiography

2. Interest in agriculture
- General
- Fruits
- Poultry
- Dairy
- Stock

3. Interest in business and commerce
- Writing
- Spelling
- Bookkeeping
- Shorthand
- Typing
- Commercial history and geography

4. Interest in industry
- Carpentry
- Cabinet-making
- Forging
- Machine-shop
- Gas engine
- Automobile mechanics
- Sheet-metal work
- Brick, stone, cement work
- Electrical wiring
- Painting and varnishing
- Printing and bookbinding
- Mechanical drawing
- Applied design
- Pattern-making
- Shop mathematics

5. Interest in housekeeping
- Sewing, millinery, designing
- Textiles, house decorating
- Cooking, serving, marketing
- Dietetics, home nursing
- Laundry, home management and accounts

6. Interest in music and art
- Technique of music
- Appreciation, through chorus, glee club, orchestra and band work
- Freehand drawing, designing, lettering
- Picture study, plastic art

7. Interest in practical experience in managing or participating in
- School paper
- Dramatics and debating and choral societies
- Literary and declamatory organizations
- Management of assemblies
- Student government and student affairs
- Boy Scouts and Camp Fire Girls
- Social service

8. Interest in physical development
- Corrective gymnastics, military drill, athletics
- Organized play, folk-dancing, health inspection
- Personal, community and sex hygiene

allowed the child, and the assistance given him in making choice, from all these interests, of the few he is able to pursue for the short period of three years. Also, when are these courses available? Can he choose from all of them each

year, or are there only a few choices open each year? By alternation of courses a large list of titles might be provided, but an aim that is not available is not an aim for the child.

Organization of courses. If all the interests suggested by the above list were embodied, singly or in combination, as aims of the various courses offered, then the three aims proposed above as the legitimate aims of a junior high school curriculum should be realizable. Whether they are or not would depend in part upon the administration of the courses. We would wish to know, therefore, how the courses were organized and managed.

After checking the specific aim of each course with reference to our three principles, and the subject-matter of the course with reference to the above list of interests, we should wish to examine the arrangement of the courses. What courses are available in each year? What sequences of courses are required? What courses are prescribed, and what elective? What scheme of advising with reference to elections is carried out?

Our experience as yet does not warrant our laying down any hard and fast rules on any of these questions. Concensus of opinion seems to favor the idea of having certain required courses each year. Some argue for similar required courses for all pupils, while others favor some elasticity; as, some adjustments with reference to the pupil's final goal. There seems to be agreement that required courses should decrease in number each year, while freedom in election is increased. Opinions differ as to the idea of sequences or prerequisites, though there is little doubt that this notion about relationship between subjects has been overemphasized.

This leaves us, it is to be regretted, with no definite measuring device except our general principles and the goals or interests which seem to be the ends toward which the junior

high school is striving. The literature on the junior high school is large, and yet any one familiar with it will realize the danger of trying to particularize at the present time. We are doubtless evolving curriculum standards, but as yet they are not completed.[1]

5. *Surveying the high-school curriculum*

General considerations. The purpose of the high school is obviously different from that of the elementary school. The former is devoted to the task of orienting the child with reference to himself and the social opportunities and responsibilities common to all. It focuses the child's attention upon himself, and upon his relation to physical and social facts and circumstances. It seeks to give him knowledge and skill in caring for himself in all these relationships. It does not attempt to prepare a child for an occupation, but by the breadth of training offered does aim to give him some general perspective for choosing an occupation. It does not prepare for any single narrow goal, such as a given trade. Neither is preparation for high school or college an aim which is clearly apart from the essential aims just described.

The junior high school proceeds from this general preparation for life, this general personal and social orientation, and continues to expand and enrich it. In addition, however, it seeks to lay a foundation for a definite superstructure. This superstructure may be erected later in high school, in college, or in technical school, or it may be laid in an actual

[1] The reader should consult: Koos, L. V.: *The Junior High School;* Davis, C. O.: "Junior High Schools in the North Central Association Territory": in *School Review*, vol. 26, pp. 324-36 (May, 1918) — also in *Report of the Grand Rapids, Michigan Survey;* Briggs, Thomas H.: *The Junior High School;* Deffenbaugh, W. S.: in *Report of United States Commissioner of Education*, 1915; Inglis, Alexander: *Principles of Secondary Education*, Boston, 1918; and Pechstein and McGregor: *The Psychology of the Junior High School Pupil*, Boston, 1924.

occupation. This unit in the organization, by its courses of study and by its plan of management, recognizes that children are not only different in their native equipment, in their social inheritances, and in their physical and emotional equipment, but, very definitely, that they have different objectives in life. While the bearing of these native differences upon school work is not disregarded, the later objectives are here brought into the foreground and in substantial part dictate the character of the curriculum.

The assumption is that this will be the final training for many children and, accordingly, attempt is made to direct these children in such a way as to give them wide opportunity to sample such intellectual and occupational activities as will give them at least the beginnings of a hold on an occupation, and make it unnecessary for them to drift into adult responsibilities with neither aim nor understanding. Others of this group will look toward further training. They, too, will have an opportunity to sample many occupations and intellectual pursuits while in the junior high school. These, however, will build their superstructure in further study, and will have here a chance to exercise some choice and be given a bit of training in intellectual self-assertion.

The senior high school builds upon these foundations a kind of superstructure, while at the same time it carries on higher up the essential parts of the foundation itself. This means a broadening of aims or, more properly, an increase in the number of aims and a consequent specialization in the selection of subject-matter. To determine what these aims shall be and what subject-matter is necessary to their attainment has been a difficult task. This is true partly because the high school population has become increasingly cosmopolitan in character as it has increased in size, and partly because changes in trade, industrial, and commercial pursuits have produced such rapid change in the character of

occupations toward which the high school might seek to train its students.

Thus the high school has attempted to set up specific aims with reference to the child and his physical and social world, while both the child and his world were in the midst of very rapid change. A few decades ago the high school had but few pupils, all preparing for college; now it has many, only a few of whom will go to college. In the early days preparation for college meant preparation for a single course; now it means preparation for almost innumerable courses. Earlier, those who did not go to college could readily fit into a trade or profession by the apprenticeship route; now the apprenticeship method is open to but few and is regarded as too slow, and is an almost hopeless route to the larger type of business, industrial, or professional career.

Determination of aims. The first step in surveying the high-school curriculum must seek to determine whether the courses are organized with reference to legitimate aims.[1] To do this we must know how to decide whether or not an aim is legitimate. It seems unnecessary to argue that high-school training should contribute to the lines of training which ended in the ninth grade. Literature, rhetoric, and composition must continue the elementary courses in reading, language, and grammar, even though they may aim at preparation for college or at a career in journalism. Algebra, geometry, and trigonometry will continue arithmetic. History will go forward from where the child left off in grade nine; and nature study, hygiene, geography, and general science will open naturally into biology, physics, physiography, and chemistry. A child who has found an interest in one of these lines already must have a chance to follow it further.

[1] A valuable statement of the problem of defining secondary-school aims will be found in Snedden, D.: *Problems of Secondary Education*, chap. XII, Boston, 1917.

If by examination we find that the subject-matter of these high-school courses is definitely adjusted to the elementary subject-matter, so that there are no gaps and not too much overlapping, and if we find stated in the printed course, or by other means, that these earlier elementary school purposes are being kept clearly in mind, not only by careful choice of materials but also by conscious method of instruction, then we know that the curriculum has one important merit, namely, that there is no "gap" between elementary- and high-school work.

If the high school must have special aims in addition to those of earlier years, can we hope for this smooth adjustment? The answer is yes, as a little reasoning will show. It is true that some great specialists have been very narrowly trained, and have not overcome their narrowness in later years. That is by no means the rule, however, and if it were we know full well that it is not a necessity and that society would much prefer it otherwise. The point here is, the more special knowledge a man has the more general knowledge he ought to have in order to keep himself and his special contribution oriented with reference both to social needs and to scientific needs. The lines of perspective which it was the purpose of the elementary courses to establish must be continued, if we are to have a sane and balanced civilization.

New aims. As we carry forward these perspective lines and these lines of exploration into the high school, we must add other lines to our picture. These additional lines will be drawn with reference to possible careers ahead of the child. What principles may we lay down to guide us in drawing them? The child ought to be trained for the occupation to which he can best contribute. Whether he can contribute will depend, not only upon his own interests and abilities, but also upon the chance he will have to apply himself

understandingly.[1] Negro girls in Boston might be anxious to learn stenography, but it would be futile to train many for that work, since very few positions are available or are likely to be available to them.

What we need, then, is knowledge of our pupils' interests and abilities, and knowledge of opportunities for them to make careers that will best utilize their interests and abilities when they have been trained. Securing this information is therefore the first step in our study of the special high-school aims.

The three principles above stated as guides in checking the aims of junior high school courses —

1. To provide opportunity for intellectual exploration.
2. To provide opportunity for exploration with reference to future occupational interests, occupational capacities, and occupational demands or possibilities.
3. To broaden and enrich the offerings looking toward the enlargement of the personal and social self.

— must be brought to bear here, though they will be brought to bear upon a different group — different in that there is greater maturity and a broader basis of training, and different in their ultimate objectives. We shall, by test and other records, get at these aims from the standpoint of the school group. Then, with the intellectual, social, æsthetic, and occupational goals in mind, the goals toward which these interests and abilities seem to point, we should be able to apply our principles in our examination of the aims of the courses offered.[2]

[1] The industrial, political, and commercial world is rapidly opening up opportunities for virtually pure research in almost every possible field. The high-school pupil should learn of the occupational possibilities in these lines, as well as in stenography, trades, business, and teaching. See *Bulletin of the National Research Council*, Vol. 1, part II, March, 1920; also section 1, of the final chapter of this book.

[2] If the city has a bureau of educational and vocational guidance we may

Organization of courses. The adjustment of courses to each other and to the needs of children in the senior high school is much the same problem as that for the junior high school. We wish to continue and to expand the opportunity for intellectual and vocational exploration, and this can be done only by arranging the courses so that more than one choice is open to the student. We desire some continuity in the training that was started in the earlier grades, but we do not want to close the avenues to new needs that may be discovered. Some constants and some electives would seem to be the best arrangement, providing the electives are chosen with reference to real needs, and the choices are not a matter of mere fancy or passing whim. There should be some sequences predetermined, but, as already pointed out, this idea should not be overworked.

A single fixed course for all, whatever the course may be, fails to recognize individual differences, as well as legitimate differences in educational goals. A number of fixed courses is an improvement over the single-course plan, but the real demand can be met only by a system of electives, and even this will accomplish its end only when provision is made for real educational advising.

Constants in the curriculum. The question then arises, how can we judge the curriculum arrangement as to constant and variable or elective courses. There is no rule-of-thumb method. We must again resort to educational principles and straight reasoning. "Constants" should include those courses which include subject-matter that is of general value, whatever the educational goal may be. English is such a study. Skill in the use of English is essential to success in

expect to find precisely this information in that bureau. We should go to that bureau, get this information, and proceed to find out whether the schools provide the kinds of courses that are needed. As a later chapter will treat of the survey of this bureau, we leave this aspect of our inquiry for the present.

any career or in further pursuit of study. Civics, history, economics, and government ought somehow to be brought into a combination looking toward good training in that social and moral responsibility which is essential to all, regardless of their occupation or position in life. Health education through hygiene and the biological sciences is likewise basic. These three aims at least – command of English, social and moral stability, and sound health — ought to be demanded of all alike. Whatever the titles of the required courses may be we should check their aims and content against these demands. Some of these courses will likely be cared for in part in the junior high school. Our concern is to see that they are not overlooked.

Variables in the curriculum. The variables ought to be as numerous as possible. They should be constructed with reference to preliminary courses offered in the junior high school, with reference to further exploration demands, and with a view to providing beginnings in occupations and further specialized study to be followed at the university. Obviously the "variables" touching vocations would differ in different communities. This means that studies and groups of studies must be examined not only with reference to vocations, but also with reference to the possibility and probability that those who elect such courses may find those vocations accessible when their training is completed. Mere smatterings should be avoided. If real foundation work for a given occupation, say secretarial work, cannot be offered, then all courses in that line that are not useful in some other combination would better be omitted.[1]

[1] For a careful analysis of secondary school aims and secondary-school curricula functions the reader should consult: Inglis, Alexander: *Principles of Secondary Education*, chap. x ff. Boston, Houghton Mifflin Company, 1918.

6. Special curriculum provisions

Ungraded room. However carefully the regular curricula may be drawn with reference to the claims of the normal child, at the various stages of his school career, there will be exceptional cases, as suggested at the outset. We are concerned here with the special curricular adjustments that are made to meet these needs. In the elementary grades where, largely for administrative reasons, promotion must be mainly by grades, the ungraded room is often used to care for children who find themselves out of adjustment. In this room special instruction can be given in which special materials, not in the regular course, may be made use of in order to effect the needed adjustment of the child to some grade group.

Home projects. Instruction in the regular courses can be greatly vitalized and enriched by use of home projects, for which credit toward graduation can be given. Such work has been found an effective means for stimulating the bright as well as the dull child to larger effort and, with proper direction, both educational and occupational exploration can be carried on by such means.

Coöperative social work. Group projects carried on at school during after-school hours, as well as in connection with courses, has been utilized to good effect in many instances. The aim is training in social and moral responsibility, in coöperation, and in the principles of division of labor, as well as in the intellectual processes necessary to the task.

The purpose here is not to name all the special variations in curricula by which we may be able to meet the needs of those who vary from the normal group, but rather to suggest that this is an aspect of the curricula survey which must not be overlooked, viz., What special subject-matter is offered to

the dull, the bright, the ill, the crippled, the unsocial, and all the special types that are bound to appear in a city school system?

Since in these exceptional cases the regular course is not suited, we wish to know what effort is being made to see that our principles are being applied as carefully with respect to the needs of these exceptions as they are to the needs of the normal groups. The special provisions through the use of the ungraded room, the home project, and coöperative social work are samples of these special adjustments.

QUESTIONS FOR CLASS DISCUSSION

1. Explain how the child and society are factors in determining the nature of the curricula in a given school system. What is meant by differences in social inheritance, and how should such differences affect the curricula?
2. What has curriculum-making to do with the problems of educational and vocational guidance?
3. What is meant by intellectual and occupational exploration, as used in connection with curriculum organization?
4. Name a list of subjects which you think should be constants in a junior high school curriculum. What subjects would you include as electives?
5. Where in the school system would you first introduce elective studies? Consult the survey reports for recommendations on this point. Would your answer vary with different types of communities?
6. Do you find in the *Survey Reports* any discussion of courses organized on a project basis? (See *A Conduct Curriculum*, by Agnes Burke and others. New York, Charles Scribner's Sons, 1923.)
7. In outlining work for elementary-school courses, what special use would you make of home projects?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Make a list of the individual differences — physical, mental, social and moral, and educational — that commonly exist among the school children of a city such as Nashville, Denver, or Worcester, Massachusetts. What would each of these differences suggest in the way of curriculum aims (elementary, junior high school, senior high school)? How many cases of each of these various groups would you expect to

find per thousand children in each of the above cities? Consult survey reports to see how facts of this character have been utilized in the criticisms and suggestions offered.

2. How would the above facts affect the organization of curricula?
3. Collect, from census reports, figures showing the occupational distribution of the population by age groups and by sex of a city such as Pittsburg. What suggestions do these facts offer on curriculum construction for that city?
4. Make a comparative study of the elementary curricula of ten cities, representative of a given economic and social status. How do they agree as to:
   a. Where each study begins and ends in the grades.
   b. Number of separate studies offered in each grade.
   c. Number of years through which each study extends.
   d. What is contained in the printed course of study.
   e. Statement of aims by subject (in printed course).
5. Make a comparative study of ten junior and senior high-school curricula as to:
   a. Courses offered, by years.
   b. Required courses, by years.
   c. Elective courses, by years.
   d. Credits per course offered.
   e. Aims of the group of required courses.
   f. Sequences required.
6. Find out exactly what use the *Portland Survey Report* made of the information given in Chapter VI. What purpose is served by Chapter I of the *Boise Survey?* Examine other reports on this basis.

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Survey Reports for the following cities will be found valuable: Boise; Cleveland, volume by Bobbitt, *What the Schools Teach and Might Teach;* Elyria, Ohio; Grand Rapids, Michigan; Portland; St. Louis, part II; Salt Lake City; San Francisco; St. Paul.

CHAPTER X

CHILD ACCOUNTING

1. The problem of this chapter

Counting the children. Thus far in our study we have dealt mainly with problems involved in the building up of an operative school machinery, and we have examined this machinery to see whether it had been constructed with reference to certain stated facts and principles. At most every point our standard of measurement has been some administrative, business, architectural, or educational principle. Only here and there have we found it possible to measure the worth of the results obtained. By a proper mastery of such principles, at the various points of our study, in their relation to the essential facts involved, we have applied to the efficiency of the system one very important check. If the administrative machinery, the financial management, the building program, the promotion scheme, or the curricula have not been designed with proper regard for sound principles, then they cannot be efficient.

The final test, however, must be a measure of results. Let us assume that, from the standpoint of scientific principles, our city has a sound educational and business organization, operating upon a sound policy; that the housing conditions, the staff, and the recording and reporting machinery are likewise satisfactory; and further, that the schools are properly graded and offering proper courses of study. We still want to know whether, and to what extent, satisfactory work is being accomplished.

To get at a measure of real results here four sets of facts must be studied: First, are the children of the city in school?

Second, what progress are they making in their courses? Third, with what success are they pursuing their studies? Fourth, are they successful after leaving school?

In this chapter it will be our purpose to deal with the first two sets of facts suggested by these questions. The third will be treated in Part III, and the fourth in Chapter XII of this Part. To answer the questions, are the children in school, and how are they progressing through the grades, we shall need to count the children from many angles, and then check the results against the normal expectancy for the city.

The studies necessary. Such a study will call for an examination of the following matters:

1. The laws governing attendance, and the issuance of work certificates.
2. Laws governing public inspection and supervision of private and parochial schools.
3. Child accounting terminology.
4. The actual attendance at school.
5. Those of school age but not in school.
6. Means for dealing with those not complying with law.
7. Progress through the grades.
8. Class marks.
9. Sizes of classes.
10. School records pertaining to these matters.
11. Actual use of such recorded facts by the schools.

In this chapter we shall attempt to show how each of these problems is to be studied, and how to bring the results to bear as a measure of the efficiency of the schools. It is not solely a matter of counting children. It involves making such classifications of the children as will most fully explain the results of our counting. If in grade 3, for example, we find that forty per cent of the children are of foreign parentage, whereas this number has fallen to ten per cent in grade 8, we then know that relatively large numbers of children of foreign parentage are being eliminated. If we

find that the percentage of girls and boys retarded is equal in grade 3, but unequal in grade 6, then we have reason to think that the curriculum may be better adapted to one sex than to the other. The more important of these classifications will be dealt with in this chapter, as we explain how to apply to a school system the test of a careful counting of children.

2. Attendance and child labor laws

Legal requirements the basis for measuring attendance. In practically every State we have laws regulating attendance at school and the employment of minors. These laws must first be studied, since they indicate specifically what children are to be counted as school children. These laws will usually state what ages are to be included, what will be accepted as school or its equivalent, the conditions under which exceptions may be made, the age and conditions under which a child may accept employment, what constitutes violation of the law, and the means for its enforcement. In addition to these two acts, provision is usually made for the establishment of parental schools or for the use of the reform school for those who cannot be made to fit into the regular day schools. Likewise truancy is usually defined, and rules governing expulsion and suspension usually are laid down.

Altogether these laws furnish the background against which our classification and counting of the children must be made. If the law says that children between six and twenty-one years of age are entitled to attend school, and that those between six and sixteen years of age shall actually be in school, then the survey should make a special point of locating all children of these groups, and finding what training each age group is receiving.

The California law analyzed. As an illustration of how

to prepare the legal facts for use in a survey, the following analysis of the California law is presented.[1]

I. School age:
  1. All children 6 to 21 years of age.
  2. All children 4 to 6 years of age, if kindergarten is available.
  3. Deaf children 3 to 4 years of age, if school for deaf is available.
  4. All adults, if school authorities deem it advisable.

II. Compulsory attendance age:
  1. All children 8 to 16 years of age.
  2. Exemptions possible:
    a. Those mentally or physically incapable of attending.
    b. Those over two miles from a public school.
    c. Those in private full time day school.
    d. Those properly tutored three hours per day, for 160 days of year.
    e. Those holding work permits (and attending part time school if between 16 and 18 years of age, or 21 in certain cases).

III. Work permits, granted to:
  1. Those between 15 and 16 years of age, if through grade 7.
  2. Those between 14 and 16 years of age, if graduated from elementary school.
    a. Provided the child's earnings are necessary for support, and he holds a health certificate.
  3. Those over 14 years of age (outside of school hours).
  4. Those assigned to a vocational course in a place of employment, and who are attending part-time classes.
  5. Those over 12 and under 16 years of age (during all vacation time).

These are the essential features of the law which indicate what children we may expect to find in school in California. Truancy is defined, and means of enforcing attendance and of expelling or suspending pupils is set forth. There also are details not shown in this outline, as the means for the estab-

[1] *School Law of California*, 1921, pp. 167–87.

lishment of schools or classes for the deaf and for parental schools and kindergartens, what is meant by "two miles from school," and the conditions under which "need for a child's wages" will be acknowledged. These details will not often be needed until the main facts have been gathered and interpreted. Then some modification of the laws, or some more adequate provision for their administration, may call for a study of the full details.

3. State control of private schools

In practically no State do we have adequate supervision of private and parochial schools, and in most States the law as well as its administration is weak. A survey will do well to examine the law on this point, and also the way in which it is administered. An ordinary compulsory-attendance law implies authority on the part of the proper public-school officers to ascertain when and where the children are in school. School laws usually define a public school, length of school day and year, the studies to be taught, the qualifications of the teacher, the textbooks to be used, what and how official records are to be kept, and, in some cases, prescribe the language to be used in the school. If public-school authorities chose to do so, in many States they unquestionably could force all private and parochial schools to live up to public-school standards simply by declaring that attendance cannot be counted for a child unless he is in a school that complies with the legal definition of a State school.

The California law specifically states that attendance can count in a private school only if the school is taught in English by persons capable of teaching, if it teaches the several branches of study required to be taught in a public school, and if it keeps in a register a complete and exact record of attendance.[1] By such a law any school district in

[1] *School Law of California*, 1921, p. 168.

California should be able to give full account of the attendance of every child. The law is less specific in many States, but everywhere the tendency is toward thorough State inspection and supervision of all schools. Any survey will do well to bring to light the facts, and with them the strong and weak points in the law and its administration.[1]

4. Child-accounting terminology

Need for standard accounting rules. One of the urgent needs, and one that gradually is being met by larger cities, is for a standard terminology to be used in all child accounting. When we use such expressions as enrollment, membership, average membership, average daily attendance, percentage enrollment, and percentage attendance, and try to use them in figuring such matters as cost, we meet with a serious difficulty because these terms have different meanings in different places and, as a consequence, facts for one city cannot easily be compared with those for another.

Meaning of recorded facts must be determined. At the outset, therefore, the survey should determine the exact meaning of the terminology in use. In many State school laws we find the terms "average attendance," "average daily attendance," and "average days attended," as well as several other forms, all of which mean "the sum of days attended by all pupils" divided by "the number of days actually taught." On the face of such facts when reported there seems entire agreement as to meaning. There are important differences which appear, though, when we ask, When is a child in attendance? and, When is a day to be included in, or excluded from, the above divisor?

In some of our States children present on the day preceding a holiday will be counted present on the holiday. The holiday sometimes enters the divisor, and sometimes not.

[1] See *The Arlington School Survey*, part II, sec. 4.

At the time of the Cleveland Survey, attendance at school was being counted as perfect for six weeks of the year, whether children attended or not.[1] In some places a child "belongs" or has "membership" or is "enrolled" in school until it is known that he has left not to return. In other places he is counted as "left" or "not belonging" after a given number of days, usually two or three.

"Percentage in attendance" usually means "aggregate days attended" divided by the "number belonging." If a child is absent ten days of the month, shall he be counted as one or one half child "belonging"? Clearly he is one child. He retained his right to a seat and to enter class any day, simply by the fact that he did not give up that right. The fact is, however, that in most cases he would be counted absent three days, after which his "membership" would be canceled, so that for seven twentieths of the month he would not figure in the divisor.[2] This makes the attendance appear higher than it is.

Reason for lack of standard terminology. In a number of our States attendance figures determine the extent to which a district may share in apportionments from the state school fund. Any additions to actual attendance are therefore of value, and schools will be reluctant to give up the practice of applying their own interpretations of "attendance" until it is defined in law. The point to be noted by the survey is that the terminology in use must be studied before comparisons are made.

5. The measure of attendance

Attendance machinery. Having before us the legal pro-

[1] Ayres, Leonard P.: *Child Accounting in the Public Schools*, p. 39, 1915.

[2] By the Massachusetts law a child belongs until it is known that he has left not to return; or, if his intentions as to returning are not known, then he is counted as belonging for ten days before his name is dropped from the roll.

visions affecting attendance at school, we are now prepared to examine the facts to see whether the children are actually in school. In this study we shall need, first of all, to examine the attendance machinery which has to do with taking the school census, enrolling the children, and keeping track of where they are.

Taking the census. In our proposed plan of organization (Figure 4), the task of taking the census might properly be placed under the control of the attendance officer. What we wish to know is: who takes the census, how it is taken, when it is taken, and what use is made of the data gathered. The law or the board rules will tell who takes the census, and when it is to be taken. The census officer will be able to provide copies of the forms used, and to explain what disposition he makes of the records obtained.

A school census, to be of value, should be taken by school authorities. The school attendance officer and school principals, or the bureau of search, could be used with advantage. It should be continuous, and it should furnish for each child of school age, on a permanent census card, such information as: the child's full name; age (on a given date); sex; birthplace; residence; school and grade now attending, or last attended; if employed, by whom and where; if out of school and not employed, why; and the name, birthplace, and occupation of parents or guardian.

A complete file of such records should be kept by the attendance officer, another file in the office of the superintendent of schools, and a third file be divided among the school principals, each principal taking charge of cards for all children resident within his school district. The functions here suggested will furnish a test of the efficiency of the school-census machinery.

Enrollment and attendance of the children. When school opens, opportunity is available for every child of school age

to enroll in a public school. To be enrolled means to have one's name on the school register, and it should be impossible for a child to enroll more than once in any school year. If a child enrolls and later leaves he should be marked "left," or "transferred." If later he enters the same school he will not enroll, but will merely return to his original enrollment. If he enters another school he will not enroll there, but will be listed as a "transfer." To insure full attendance the number of pupils enrolled must be carefully checked against the census returns for each district.

The machinery necessary for carrying on this work will include a pupil register, transfer cards, and some kind of report form to be used by private schools or tutors in reporting attendance facts. This machinery, and the placement of the responsibility for its operation, should be carefully examined, both as a basis for interpreting attendance statistics and because it is important as school machinery.

In a similar way study must be made of the forms used in keeping and reporting attendance facts. The daily register, the report forms, and the summaries of facts about attendance are important if we are to enforce the compulsory attendance law, get at the truth about absence and its causes, overcome tardiness, and prevent the retardation that may otherwise be attributable to this cause.

Extent of attendance. One test of a school system is the extent to which it enrolls the children and keeps them in school. The facts necessary for such a study are suggested by the following forms. Form 24 brings together, by age groups, the number of children enrolled in the various types of schools, the number according to the school census, and the number according to the federal census. Each of the last two columns of figures will afford a basis for determining the extent to which the children of legal school age are in school, and the last column will furnish a similar check on

FORM 24. SCHOOL ENROLLMENT BY AGES, COMPARED WITH SCHOOL AND FEDERAL CENSUS ENUMERATION

AGE	NUMBER ENROLLED IN SCHOOL									LEGALLY EXCUSED	SCHOOL CENSUS	FEDERAL CENSUS
	Public				Private		Parochial		Total			
	Elementary	High	Special	Part Time	Elementary	Secondary	Elementary	Secondary				
6 to 7												
7 to 8												
8 to 9												
19 to 20												
20 to 21												
Total												

the school census figures. If the sum of the figures preceding the last two columns should not equal those of the school census, then we know that the attendance law is not being enforced and the survey must look into the causes. The reason may be inadequate compelling force, or it may be sickness, death, marriage, graduation from the schools, truancy, removal from district, poverty at home, or other causes.

A second and exactly similar tabulation, using average daily attendance instead of enrollment figures, will be necessary, because enrollment is no safe guarantee of attendance.[1] When the attendance figures have been checked against the enrollment figures, and the two against the school and fed-

[1] It is not customary to figure average daily attendance by age groups. Accordingly, it might be necessary to replace the word "age" in column one by the word "grade." This would interfere only slightly with the proposed comparisons.

eral census figures, it will be possible to state what percentage of the children are obtaining the schooling which the law requires.

6. The character and extent of non-attendance

Location of absentees. The extent of non-attendance is not fully apparent from the data suggested in Form 24. From that table we cannot tell whether the average attendance has been brought down mainly by a small group the members of which are absent most of the time, or by a large group each of which is absent only occasionally. To answer such an inquiry a tabulation as indicated by Form 25 is suggested. From this it is possible to see how widely through the grades the non-attendance is distributed.

FORM 25. A DISTRIBUTION OF CHILDREN BY GRADES, AND BY THE NUMBER OF DAYS THEY HAVE ATTENDED SCHOOL

DAYS ATTENDED	NUMBER OF PUPILS IN EACH GRADE ATTENDING												TOTAL
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
1 to 10													
11 to 20													
21 to 30													
181 to 190													
191 to 200													
Total....													

A table similar to Form 25, but replacing the number of the grade with the name of the building; another using parents' nationality; and still another using the father's occupation instead of the grade, would furnish valuable analyses of non-attendance.

From such data the spread of non-attendance through the grades, through the different sections of the city, and through the various racial and occupational classes could be seen at a glance. Such facts throw light upon the causes of absence, and may suggest modifications in courses, equipment, organization, or in many other directions. Sometimes it may be wise to prepare all these displays for boys and for girls separately.[1]

Causes of absence. By Form 24, together with other tabulations there suggested, we are able to see how many children of the various ages are not in school at all or, if in school, something of the extent of the irregularity of their attendance. Form 25 gives us the amount of attendance by grades and, by inference, the amount of non-attendance. These facts could be isolated and classified, as suggested by Form 26. In this table the causes, both legitimate and illegitimate, are listed, and the children are grouped with reference to the amount of absence. This tabulation covers children of compulsory school age only. Similar analyses could be made of those above and below these ages, if the census and attendance records were adequate.

By such a study as this the survey would bring to light the extent to which the schools are not doing their work. The right-hand totals show clearly whether the bulk of absences rests with few or many pupils, while the bottom totals show the extent to which the absences are legitimate. This places responsibility very definitely, and shows where the attack on this problem is to be made. If the figures under truancy, expelled, suspended, at home, and at work are large, then the schools have something to explain.

What is meant by "large" here cannot be stated satisfac-

[1] A modern school principal will necessarily want to examine such analyses as these every school term, and through an efficient research bureau these facts ought to be available as parts of regular routine studies.

Form 26. Extent and Causes of Absence for Children of Compulsory School Ages

	Number of Pupils of Compulsory School Ages Absent for Causes, as Follows:														
Extent of Absence at Least	Death	Defective		Illness	Poverty	Marriage	At work		At Home	Graduated	Out of City	Truancy	Expelled	Suspended	Total without duplicates
		Phys.	Men.				Yes	No							
Full time															
190 da.															
180 "															
170 "															
20 "															
10 "															
Total															

torily in numbers or percentages, but may be made reasonably clear by comparison with other cities. As unexcused absences are referred to attendance officers, it should be possible to assemble from city school reports (attendance office) such data as are suggested by Form 27. By this means the facts for one city may be measured against those for a number of other cities, and against the average for the group. There will necessarily be wide variation among cities, even when care is taken to choose cities that are comparable, yet the average for such a group can be accepted as a rough norm against which a city's position can be defined.

7. The handling of absentees

Placement of responsibility. In Figure 4, page 68, which gave a plan of school organization drawn with reference to certain stated administrative principles, the care of absentees was placed in the hands of an attendance officer. In Chapter VII the importance of a thoroughly well coördinated set of records and reports was explained. If the schools have an attendance or truancy officer, then the care of nonattendance should rest with his office. The matter of greatest importance, however, is that the census work and the enforcement of attendance shall be under the control of the superintendent of schools, and that the work shall be carried on with reference to the school program, and not as a separate matter, as it usually is when the census work is left to the clerk of the board or to the city police department, and the compulsory attendance to the probation officer or to juvenile court machinery.

Need of efficient records. The problem of suitable record and report-forms is of great importance. Absences should be reported to the principal's office, and also recorded on the teacher's register. The principal should keep a record of the cases, showing dates, causes, and disposition of each. He

Form 27. Comparative Study of Amounts and Causes of Non-Attendance, in 15 Cities

Name of City	Per cent of Census Children of Compulsory School Ages Absent without Just Cause								Per cent of Total Absence Explained by			
	10 per cent of time	20 per cent of time	30 per cent of time	40 per cent of time	50 per cent of time	60 per cent of time	70 per cent of time	Over 70 per cent of time	Legitimate excuses	No legitimate cause		
										Truancy	At Work	Doing nothing
City A...												
City B...												
City C...												
City N...												
City O...												
Average												

should have a simple form for reporting cases to the attendance office, and the attendance office a simple form for reporting back to the principal what action has been taken. There should also be kept as a permanent record a complete history of every case, the essential facts from which should be sent to any school to which the offender may transfer.

It should be assumed that there are reasons for such offenses, and the school system that makes no attempt to find the reasons is applying an outworn theory of discipline. It is not retribution for offense but training that is wanted. Accordingly, each case should be studied thoroughly. The history of any case of importance should show, in simple card form, the age, grade, school, sex, mental age and I.Q., quality of school work, parentage, home conditions and occupation, physical conditions, social peculiarities, and other details, in addition to the full facts about each offense, including, finally, the disposition of the case on each offense.

If such records are available in a school system it will be possible, in a brief study, to discover the weak and strong points in the school's plan of managing non-attendance. If no such records are available, it goes almost without saying that little in the way of educational diagnosis or prescription is being applied in the schools at the point where the very most exacting of technical study and work is needed.

8. Progress through the grades

Purpose of this kind of accounting. In addition to counting the children to see whether or not they are in school, it is necessary to count them with reference to the progress they are making through their grades. There are four reasons why this kind of accounting is essential in scientific management and in surveying:

First, the rate of progress of the children through the grades gives us a quantitative statement of output as com-

pared with intake of human material. Such facts have a general social and economic, as well as an educational significance.

Second, such facts furnish an important check on the grading-and-promotion machinery and on the general management of the children.

Third, they provide a valuable index as to the efficiency of the curriculum. A large amount of slow progress means a too-difficult or ill-adapted curriculum.

Fourth, they are essential in determining the cost of instruction. A child who spends nine years doing eight years of work is a case of nine units of cost for eight units of accomplishment, and so an exhibition of poor economy.

Such figures, therefore, are indispensable in modern management, and a survey should not only make such studies, but it should find out whether the schools are making and using the results of such studies as a regular routine part of management, supervision, and administration.

Standards and definitions to be used. There are certain well-established standards and a fairly definite technique to be applied in such a study. It is not enough to know that a nine years' old child is in grade 5. We should know his exact age, when he entered school, where he is in the grade, and where he normally belongs. To handle such facts with exactness the following rules and standards should be followed:

A child is regarded as normal in position when he is in a given grade between certain ages. He is regarded as accelerated when he is younger than the required age, and retarded when beyond the required age. The time set as the normal amount of time for a half school year is 1 year, and for a full school year eighteen months. This allows for a leeway of three months at each end of a term, whether the term is a half year or a year. Thus, a child would be normal for grade one if found in that grade as early as the age five years and nine months, or as late as seven years and three months.

A child has made "normal progress" when he has completed a grade, that is, a full year's work in a year. If he has completed less than a year's work in a year he is said to have made "slow progress," and if more than a year's work "rapid progress."

A child might be normal in his position and still be retarded or accelerated. A child who is seven years old in the middle of the school year and in grade one is normal in position, but, since he cannot possibly complete the grade by the time he is seven years and three months old, he is in reality retarded. A study of the mere positions of children is therefore apt to be misleading. What we need is to include the time factor. This we can do by determining the standard age for the time in question. The best time to use is either the beginning or the end of the grade or half grade. Table XXIV furnishes us with these standards, separately for each half grade.

TABLE XXIV. AGE-GRADE NORMS FOR THE BEGINNING AND END OF EACH HALF SCHOOL YEAR

GRADE	NORMAL AGE OF PUPILS AT			
	Beginning of		End of	
	First Half, Years and Months	Second Half, Years and Months	First Half, Years and Months	Second Half, Years and Months
I	5-9 to 6-3	6-3 to 6-9	6-3 to 6-9	6-9 to 7-3
II	6-9 to 7-3	7-3 to 7-9	7-3 to 7-9	7-9 to 8-3
III	7-9 to 8-3	8-3 to 8-9	8-3 to 8-9	8-9 to 9-3
IV	8-9 to 9-3	9-3 to 9-9	9-3 to 9-9	9-9 to 10-3
V	9-9 to 10-3	10-3 to 10-9	10-3 to 10-9	10-9 to 11-3
VI	10-9 to 11-3	11-3 to 11-9	11-3 to 11-9	11-9 to 12-3
VII	11-9 to 12-3	12-3 to 12-9	12-3 to 12-9	12-9 to 13-3
VIII	12-9 to 13-3	13-3 to 13-9	13-3 to 13-9	13-9 to 14-3
IX	13-9 to 14-3	14-3 to 14-9	14-3 to 14-9	14-9 to 15-3
X	14-9 to 15-3	15-3 to 15-9	15-3 to 15-9	15-9 to 16-3
XI	15-9 to 16-3	16-3 to 16-9	16-3 to 16-9	16-9 to 17-3
XII	16-9 to 17-3	17-3 to 17-9	17-3 to 17-9	17-9 to 18-3

Facts to be ascertained. There are two kinds of studies to be made. One shows where the children are in their

studies at a given age. This is called an age-grade study. The other shows how long it has taken the children to do the amount of work completed up to a given date. This is called a study of progress. In the former we get a picture of the schools as they stand. We see how the children of each age group are distributed through the grades, but cannot infer accurately how long it has taken them to reach their present positions. In the latter we get a clear statement of the rate at which each child has worked through the grades, but cannot infer accurately how old the children are. Thus a child may be described as retarded, normal, or accelerated, either from the standpoint of his position in the grades at a given age, or from the standpoint of the length of time it has taken him to reach a given point in the grades.

The importance of all of these facts is obvious enough when we refer a child to each of the nine possible positions in Form 28. A child is in group 1, that is, he is under age and has made rapid progress when he is not only below normal age for his grade but, in addition, has made the grade in less than the normal time of one grade per year. A child is in group 5 who started at age six and completed one grade each year. He would be in group 6 if he is of normal age for the grade he is in, but has spent more than the normal time in getting there. Such a child would have to enter before the age of six and then lose the amount gained by early entrance. In the Cleveland Survey, 6 per cent of the children of the city were found in group 1, 2 per cent in group 2, 1 per cent in group 3, 30 per cent in group 4, 23 per cent in group 5, 6 per cent in group 6, 1 per cent in group 7, 9 per cent in group 8, and 22 per cent in group 9.[1]

How to assemble the main facts. From the permanent record cards the facts may be collected and arranged in many different ways. Form 28 gives one of the very best of

[1] Ayres, L. P.: *Child Accounting in the Public Schools,* 1915.

FORM 28. SCHEME FOR GROUPING CHILDREN WITH REFERENCE TO AGE, GRADE, AND RATE OF PROGRESS THROUGH SCHOOL

1 under age rapid progress	2 under age normal progress	3 under age slow progress
4 normal age rapid progress	5 normal age normal progress	6 normal age slow progress
7 over age rapid progress	8 over age normal progress	9 over age slow progress

summaries. The age-grade table described by Form 29 shows the essential facts about the present distribution of the children through the grades. If a second table is prepared like this, but with the "age" column on the left replaced by a "years-in-school" column, then we would have separate pictures of present status and of progress. If these figures were assembled for boys and girls separately and by schools, and then combined, much light might be thrown upon the meaning of the figures. Once the figures have been assembled it is then possible to prepare almost an endless number of displays.[1]

Amount of repeating and skipping of grades. The place and amount of repeating and skipping of work would be made clear by such data as are suggested by Form 30, which offers a plan for summarizing the essential facts. In order to appear in this table a child must either have repeated or

[1] See *Survey Reports* of Atlanta, Boise, Cleveland, Elyria, Gary, Philadelphia, Salt Lake City, and San Francisco.

Form 29. Form for Preparing Age-Grade Distribution of Children

Date when made ....

Age (years and months)	Kinder-garten	Grade I		II		III		IV		V		VI		VII		VIII		IX		X		XI		XII		Total
		B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	
4-9 to 5-3																										
5-3 to 5-9																										
5-9 to 6-3																										
6-3 to 6-9																										
6-9 to 7-3																										
7-3 to 7-9																										
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15-9 to 16-3																										
16-3 to 16-9																										
16-9 to 17-3																										
17-3 to 17-9																										
17-9 to 18-3																										
Total																										
No. accelerated																										
No. at age																										
No. retarded																										
Per cent accelerated																										
Per cent at age																										
Per cent retarded																										

FORM 30. SHOWING THE NUMBER OF PUPILS IN EACH GRADE WHO HAVE REPEATED OR SKIPPED THE WORK OF EACH OF THE GRADES, AND HOW MANY REPETITIONS AND SKIPS HAVE BEEN MADE IN EACH GRADE BY THE PRESENT SCHOOL POPULATION

(A child is counted once for each repetition or skip)

GRADE NOW OCCUPIED	NUMBER NOW IN SCHOOL WHO HAVE																
	Repeated work of grade									Skipped work of grade							
	I	II	III	IV	V	VI	VII	VIII	Total	I	II	III	IV	V	VI	VII	VIII	Total
I..																		
II..																		
III..																		
IV..																		
V..																		
VI..																		
VII..																		
VIII..																		
Total																		

skipped a grade.[1] If a child had repeated and later or earlier had skipped, then he would count on both sides of the table. If he had repeated three grades, or one grade three times, he would appear three times in the first half of the table. These facts may be arranged by schools and by sexes, and then summarized as here.

Such a study would show the amount of irregular progress, and where it takes place. If there is more repeating than skipping then we know that, in point of difficulty, the curriculum is designed for the brighter children. If we get wide differences between schools, or between the sexes, we must then look for explanations of these findings.

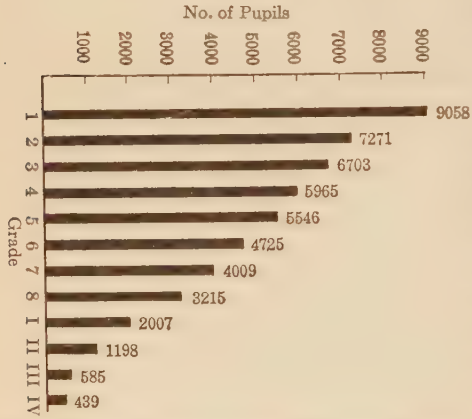

Fig. 9. Grade Distribution of Public School Pupils in San Francisco, as Shown by Survey Report

To these figures might wisely be added simple tables showing, for each building, sex, grade, and for all these together, the number repeating or skipping once, twice, three times, or more than three times, by which we could get further suggestions as to the degree of weakness or strength associated with the irregular progress.

The amount of elimination. Some children make little or

[1] All these tables would ordinarily be arranged by half grades, rather than as here suggested. The purpose here is merely to explain the technique.

no progress at all, and finally drop out of school entirely. This elimination becomes a serious problem. We have already discussed the desirability of comparing enrollment with census figures (Form 24). Such a study is particularly important when the figures are arranged by grades as well as by ages, for then we can see not only whether the compulsory attendance law is being enforced, but also the extent to which the schools are holding the children beyond the compulsory age. Such facts furnish a basis for judging the efficiency of the schools, even if they do not explain why the schools hold so many or so few. One of the first studies to be suggested here, then, is of these figures, by which we can see the places in the curriculum and the ages at which elimination from schools takes place, together with the extent of the elimination.

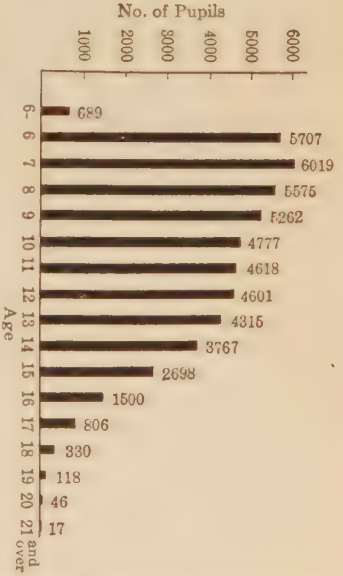

FIG. 10. AGE DISTRIBUTION OF PUBLIC SCHOOL PUPILS IN SAN FRANCISCO AS SHOWN BY THE SURVEY REPORT

A graphic as well as a tabular arrangement of these facts will be the most satisfactory, and for this Figures 9 and 10, based on figures published in the *San Francisco Survey Report*, will be useful. It will be seen that the large amount of elimination that appears from such displays as Figure 9 is in part apparent only. The rapid decrease in numbers is accounted for in small part by deaths, in part (usually, in

American cities) by increase in population, and in part by failures to be promoted.[1]

9. Causes of irregular progress

It is not enough to show that progress is irregular, or to show how and where it is irregular. If we are to offer constructive criticism we must reveal the causes and show how to remove them. A survey cannot go into great detail in its study of the causes of irregular progress, yet certain well-known factors, such as mentality, early or late entrance, irregular attendance, physical defects, social heredity and home environment can be handled, at least by sample studies.[2]

Influence of mentality. Progress is greatly influenced by the child's mental ability.[3] By use of group intelligence tests it is now possible, with only a reasonable amount of work, to apply an important test of school progress. If the principle is operating, that schools should be so organized and managed that every child will be required (or privileged) to work up to his full capacity, then we should find each child perfectly adjusted to the promotional machinery. If we apply a mental test, and then prepare a table similar to Form 29, but using mental instead of chronological ages, we can then see the extent to which pupils have progressed through the grades at a rate not warranted by their mental abilities.

Suppose we find a child who is chronologically ten, but mentally thirteen years old. If he has progressed in accordance with the above principle then we should expect to find him in grade eight. If instead of thirteen his mental age

[1] For method of computing corrections, see Ayres, L. P.: *Laggards in Our Schools*, chap. III.

[2] See also Chapter XII, on the influence of the marking system.

[3] See Terman, L. M.: *The Intelligence of School Children.* Boston, Houghton Mifflin Company, 1919.

were ten years, we should expect to find him in grade five. If his mental age were seven years we should expect to find him in grade two. Thus whatever we find of acceleration or retardation on an ordinary age-grade basis needs to be checked by the results from mental testing, because practically all such studies have shown that a large percentage of retarded pupils are, on a mental-age basis, either normal or accelerated, while the accelerated pupils are as frequently found to be normal or retarded when mental age is used as the basis.

Influence of early and late entrance. In taking the data from the cards (which data must be presumed to have been carefully authenticated) the cases should be tabulated, not merely for age-grade-progress tables, but age of entrance and repeaters should be kept track of as well. We cannot study the meaning of early or late entrance without knowing the facts, neither can we get at a remedy for repeating unless we learn just where in the schools and grades the repeating is being done, and, in addition, know who is doing it.

The following classifications of these two sets of figures will be found useful. The data for Form 31 show for each child the grade he is in, the age at which he entered school in grade one, and whether he is accelerated, normal, or retarded as to present position in the grades. These data may be difficult to obtain in full in some schools, though the modern school principal is likely to be able to furnish them on brief notice. If data can be obtained by buildings and by sexes and then summarized, it will prove worth the cost, for then the relation between time of entrance and school progress can be seen. When such data are supplemented by the use of intelligence tests something definite can be said about the meaning of early and late entrance to our schools, as the schools are at present organized and operating.

Influence of irregular attendance. Irregular attendance

Form 31. Distribution of Pupils in Each Grade with Reference to the Age at which they Entered School

Age upon Entering Grade One	Grade in which Pupils are now Located																								Total
	I			II			III			IV			V			VI			VII			VIII			
	A.	N.	R.	A.	N.	R.	A.	N.	R.	A.	N.	R.	A.	N.	R.	A.	N.	R.	A.	N.	R.	A.	N.	R.	
5																									
5½																									
6																									
6½																									
7																									
7½																									
8																									
Total under age																									
Total normal																									
Total over age																									

will surely retard progress. The best way to show the extent of this influence in a school system is to make sample studies of the relationship between amounts of absence and promotions. Form 32 suggests the data needed for such a study. It is obvious that, if the number not promoted in the grades, and the number receiving D and E in the high

FORM 32. SHOWING THE RELATION OF NON-ATTENDANCE TO PROMOTION AND FAILURE IN THE ELEMENTARY SCHOOL, AND TO CLASS MARKS IN THE HIGH SCHOOL

PER CENT OF TIME ABSENT	ELEMENTARY-SCHOOL PUPILS				HIGH-SCHOOL PUPILS				
	Promoted		Failed		Average Marks Received in Studies				
	Number	Per cent	Number	Per cent	A	B	C	D	E
0 to 10...									
11 to 20...									
21 to 30...									
31 to 40...									
41 to 50...									
51 to 60...									
61 to 70...									
71 to 80...									
81 or over..									
Total....									

school increases with the amount of absence from school, then absence, as a highly probable cause of slow progress, should be decreased if that is possible.

Influence of ill-health. Ayres found that a relatively higher percentage of school children with enlarged glands, defective breathing, defective teeth, hypertrophied tonsils, and adenoids were to be found among the retarded than among either the normal or the accelerated.[1] There is enough in these and other investigations to warrant a study of health records in their relation to the facts of retardation,

[1] *Laggards in Our Schools,* chap. XII.

promotion, and class marks. If such data as are suggested by Form 33 can be assembled for a few sections of the city, it is believed that important facts bearing upon the rate of progress will be found.

FORM 33. SHOWING, FOR EACH OF THE PROGRESS GROUPS, THE PERCENTAGE OF PUPILS SUFFERING FROM EACH OF FIVE PHYSICAL DEFECTS

MARKED PHYSICAL DEFECTS	ACCELERATED		NORMAL		RETARDED	
	Cases Examined	Per cent defective	Cases Examined	Per cent defective	Cases Examined	Per cent defective
Undernourished.						
Adenoids.....						
Defective teeth..						
Hypertrophied tonsils.....						
Enlarged glands						
Total.....						

Whatever defects have been recorded on the child's health-card will necessarily furnish the basis for the study. The promotion statistics or the class marks could be used in place of the three progress groups. By each of the three methods the conclusions would bear directly upon the relation between physical defects and progress. Incidentally such a study of health data is necessary for other reasons, as will be explained in a later chapter.

Influence of social heredity. The nativity, the occupation, and the native language of a child's parents are a fair index to the traditions, customs, and ideals which play a large part in determining the child's attitude toward education. Studies enough have been made with educational and mental tests to prove that this factor is important wherever we have large numbers of the foreign-born or of unskilled laborers.[1] Preparation of data for such studies as would be

[1] See chap. IV, of the *Survey of Spelling Efficiency in the Oakland Schools.*

necessary to show adequate samples would be so much like the above tables that it seems unnecessary to explain the procedure in detail.

In all the five factors here treated, we need not quibble over the question of whether a relationship such as we would find by these studies is a causal relationship. Absence is not a direct cause of retardation, but absence prevents study, lack of study means failure in examinations, and this in turn means loss of promotion or serves as a check on progress. So far as school administration is concerned, therefore, absence can be treated as if it were a direct cause, as can adenoids, and late entrance.

What should be done about irregular progress? It is one thing to know how much retardation and acceleration there is, and exactly where it is located in the school system. It is a second thing to know what forces are at work to cause the waste that this represents. It is a third thing to show how those causes can be removed. We have shown how to make a study of progress, and how to study the causes of rapid and slow progress. It remains to point the way to a solution of the problem.

Let us assume, by way of illustration, that our tables show a large amount of retardation, most of which is also slow progress. Let us assume, further, that the average I.Q., the average attendance, the average physical condition, and the average social heredity are all distinctly lower in this group than is true of either the normal or the accelerated group; and, finally, that the large majority of the slow group entered school at the age of six years. What do these facts mean for a change in the work of the schools?

We cannot say offhand that the promotion machinery is inelastic [1] or that the curriculum is too difficult, since our

[1] For a discussion of how to detect and measure such defects, and what such weaknesses mean, see Chapter VIII, page 208 ff.

facts show that other causes account for so much of the retardation. Exactly how much is accounted for by these factors singly or in combination need not be determined in a general survey, though the superintendent and each school principal would surely wish to know this before completing the details of any reorganization.[1]

If the promotional machinery is known to be reasonably flexible, then we should turn to methods for improving attendance, for better health supervision, and for getting children to start to school at an earlier age. Mentality cannot be improved, and accordingly, here we must look to the curriculum. Either a revision of the content of courses, changes by way of dropping some courses for certain children, or the introduction of new courses must be looked into as possible solutions. Again the social heredity cannot be changed. It is possible, however, through the use of visiting teachers and nurses to modify quite effectively the pressure at this point.

It is not possible in brief space, nor is it necessary here to show how to make all the various cross studies that this suggests. It is clear enough that these studies are studies of the efficiency of the attendance department, of the grading and promotional scheme, of the supervision of health, and of the content and administration of the curriculum. Later we shall refer to these same studies as a means for measuring the efficiency of instruction.[2]

10. Other cases of child accounting

Class marks. There are several other aspects of the function of child accounting which are treated elsewhere in this

[1] To get at this we should want to know how many of the retarded children carry none of these five handicaps, and how many carry one, two, three, four, and five. Then we should want to classify the cases with reference to the intensity of the handicap and the amount of retardation.

[2] See Part III.

book, but which must be mentioned here as a part of our examination of this feature of the school system. One of these is the accounting necessary for handling the records of accomplishment in class. The system of class marks is such an important part of the lesser administrative machinery of the schools that it seems wise to devote a brief chapter (XII) to that subject. Here only the bearing of such a study upon our study of progress through the grades, attendance and non-attendance statistics, the working of the grading and promotional machinery, the organization of the curriculum, and, indirectly, upon costs, need be mentioned as an explanation of why we are to look carefully into this feature of child accounting.

Size of classes. Another study in child accounting, which may furnish us with an index of efficiency, is that of counting the children in the classrooms. The bearing of such facts upon costs, school building programs, and teaching load have been discussed in Chapters IV, V, and VI. Their bearing upon promotion, efficiency of instruction, and class discipline are not so clearly definable, though we know that there is a limit beyond which inefficiency is sure to result. There are some experimental and other data available on this subject, though the question is not settled.[1] The kind of data needed and how to arrange them for study is clearly enough indicated in the chapters above referred to, and in Part III, following.

Adequacy of records. In Chapter VII a plan for studying the system of records and reports of a school system was explained. The need for a very large number of facts about the children has been brought out in this survey of child accounting. All of the accounting data proposed for study here are data that are needed, not merely in a survey, but at

[1] See Stevenson, P. R.: *Relation of Size of Class to School Efficiency*, University of Illinois, Bulletin no. 45, vol. XIX. 1922.

all times as bases for efficient administration. Accordingly, a careful study of the kinds of facts kept and of the availability of those facts for use is necessary. For these we must look to the system of records that are being kept.

The question raised here is simple. Do the records give us the facts wanted about census, enrollment, attendance, absences, disposition of cases of absence, and promotions and failures, together with personal histories and other facts about health, family, and mentality? The answer calls for an examination of the schools' records.

Are the recorded facts being used? A bare record is not enough. According to the principles laid down above a record is made only when the fact recorded is of some use in running the schools. A survey should find more than bare records. There should be careful summaries, classifications, and comparisons of facts as well. It ought to be possible to find such studies in every principal's office, as well as in that of the superintendent, whether there is a statistician or research bureau to prepare them or not.

One of the best single checks that could be put upon the work of a school principal would be a request for the records he keeps, for copies of the summaries and classifications of school facts which he has on hand, and of the studies he has made of such data, and then ask what changes if any he has made or proposes to make as a result of the studies.

We should expect to find age-grade and progress tables, with various summaries of facts as to retardation and acceleration. We should expect to find summaries of enrollment, attendance, and census facts. We should expect to find studies of absences and elimination by sexes, grades, and social groups. We should expect to find studies of promotions and failures, and the bearing of all these and similar studies upon his courses of study, promotion plans, system of records and reports, and marking system, as well as upon

the general success of the school as a whole and upon the instruction in the various rooms.

QUESTIONS FOR CLASS DISCUSSION

1. In the survey reports we find age-grade tables using different norms (see question 4 in the list of Problems for Investigation and Report following). What are the merits of each of the following statements:
   (1) A child should be allowed two years in which to complete the work of any given grade, and if in the grade during that period should be counted normal.
   (2) Substitute for "two years," above, the words "one year for a half year, and eighteen months for a year."
   (3) The normal age for grade one should be from 5 years and 9 months to 7 years and 3 months.
   (4) The normal age for grade one is from 6 years to 8 years.
   (5) The normal age for grade one is from 5 years and 6 months to 7 years and 6 months.
2. What values would a carefully kept state school census have?
3. How would you interpret the age-grade and progress data given in the *Atlanta Survey Report*? Can we hope ever to do away with the phenomenon of retardation and keep our curriculum standards where they are?
4. It is frequently stated that the brightest children are in reality more often retarded and more retarded than are the mentally slow children. How do you explain such a statement?
5. When would you have your age-grade tables and your progress tables prepared, if you were superintendent of a city school system? Why?
6. If records in your school system showed that there was much tardiness and absence, what studies or investigations would you suggest as a means of getting at the causes?
7. What importance is there in having a standard accounting terminology? (Consult the *Cleveland Survey Report*, volume on *Child Accounting in the Public Schools*.
8. How would you measure the holding power of a city school system? (See the *San Francisco Survey Report*, p. 33 ff.) Compare with other reports.

PROBLEMS FOR INVESTIGATION AND REPORT

1. In the chapter on records and reports, certain principles were laid down for the development of a record system. Show how this chapter clarifies or illustrates those principles.
2. Make a study of the attendance laws of a group of States, and propose any modifications that would be necessary to make easily available the census, enrollment, and attendance facts called for in this chapter.

3. Define the following child-accounting terms as defined in law in each of six States: *average daily attendance, number belonging, per cent of attendance, enrollment,* and *left* or *transferred.* What survey reports point out the need for standard terminology?
4. Prepare an age-grade table and a progress table for a single elementary school. In how many individual cases would an age-grade table without a progress table have been misleading to a supervisor? Can you make comparisons between cities by use of the following: *Philadelphia Report,* vol. II, p. 182; *Lawrence Township, New Jersey,* Table XVII; *Salt Lake City Report,* Table XXXVI; *Butte Report,* Table VI; *Columbia, South Carolina, Report,* pp. 169–70.
5. Make a comparative study of Federal census, school census, enrollment, and attendance figures, and then answer the questions: Is the compulsory attendance law in force? Do the figures for those outside of the compulsory ages indicate that the school has a good holding power?
6. Compare a mental age-grade distribution of children with a chronological age-grade distribution of the same children.
7. Make a study of the age-grade-progress data published in a group of city school reports. Out of fifty cities, how many present data of this sort? How many give age-grade tables only? How many give all the data called for in Figure 36? How many give mental-age-grade or I.Q.-grade data? How many explain the meaning of the data presented?
8. From survey reports answer the following:
   a. What percentage of the pupils were retarded, normal, accelerated (each grade)?
   b. What percentage made rapid, normal, or slow progress?
9. Sum up the constructive suggestions made by survey reports, on the basis of retardation and progress studies.

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CHAPTER XI

THE DAILY PROGRAM

1. The problem

Demand for efficiency in operation. Once the machinery of a school system has been worked out and the school aims and school studies determined upon, the next task is to establish an efficient plan of operation. The problem of the survey at this point is to study the school's plan of procedure to see whether it embodies principles of economy. At every point we have demanded of the schools that they have clearly defined objectives, that they construct only such machinery as is necessary to attain those objectives, and that each piece of machinery be devised with reference to a clearly determined function. Here we shall demand that this machinery shall operate with full regard for principles of efficiency.

The factors involved. In devising a program of work the following factors must be kept in mind: The specific objectives of instruction, as ability to read, number skill, correct working habits, and sound physique; the child's health and happiness; the number and variety of courses offered; sound pedagogical procedure; conservation of the teacher's energy; the time available; the arrangement of buildings and equipment; and the classification of the children. The survey of the curricula will tell us whether the right studies with the right objectives have been provided. The survey of the staff and buildings will tell us whether these are adequate and properly adjusted to the right educational objectives, as well as indicate the points at which the work program will have to take them into account. Thus our inquiry at this point turns to the apportionment of time to

the various school activities, and to the economy with which the work is being carried on.

The specific aims of the kindergarten, the elementary, and the high schools are different; their curricula are different, and the children are different. Obviously the work programs must recognize these differences. Similar differences, only a little less pronounced, exist within each of these units. Our problem is to apply a standard that recognizes all these differences as fully as is consistent with economy. It is not possible for each child to have a separate program, and the opposite extreme of one program for all is quite as absurd.

The survey problem. Thus it will be seen that we have no exact measuring stick to apply to the work program. The best program possible must be a compromise between economy of time and ease of procedure on the one hand, and proper regard for the best educational methods on the other. It will also be a compromise between what is best for the individual and what is best for the entire group. Our problem here will be to suggest such a standard, and to show how to apply it in a survey.

2. Standards for evaluating a program

Time allotment. Above we have listed the factors that must be regarded in making a program. The first one, educational objectives, represents the goals to be attained. The survey must be able to say whether the program makes this attainment possible. To do this our first step will be to ask whether the time schedule has been devised with reference to these objectives.

The efficiency of the pupils in their studies, as measured by various tests, will afford a basis for saying whether the school aims are being achieved. This aspect of the survey will be treated in Part III, following. If the test results are above or below standard, then we must find the explanation

of this. Our first step is an examination of the time allotment.

The amount of time devoted to each school activity can be determined easily, though we have no absolute standard against which our findings may be judged. Studies that have been made show such wide variety in practice for each of the subjects that one wonders just what the time devoted to a subject has to do with a child's proficiency in that subject.[1] In time we shall be able to answer this question on the basis of experimental evidence.[2] At present we can use nothing better than some statistical expression of practice in schools that are reputed to be the best. For this the median, and perhaps some measure of deviation from the median, would be most useful.

Order of studies. If there is one educational aim that should come first it is that having to do with the child's health and physical development. A healthy and well-developed body is a central goal, and we have well-established norms by which we may judge the success of the schools in this regard. Tables of bodily measurements arranged by ages and sex are available, and should be in use in all schools. The evil effects of a poor program might not be readily found by reference to such measurements, however, since such effects may rarely be so serious as to produce such symptoms.

What we need is a means of finding whether the child's

[1] For a study of official time schedules see Holmes, H. W.: "Time Distribution in Subjects and Grades in Representative Cities"; in *Fourteenth Yearbook of the National Society for the Study of Education*, part I. 1915. For a detailed study of a given city see Sears, J. B.: "Time Allotment in the Schools of Salt Lake City"; in *School Administration and Supervision*, March, 1916. The latter contains a good bibliography.

[2] If we knew what a child of given mental capacity could accomplish in each of his studies (as measured by tests) by devoting a given amount of time per day, week, and year to the study under given conditions, we could then devise a scientific allotment of the child's time. Any school principal could carry out such an experiment.

physical and mental energy are being used to good advantage. A program that is too heavy or ill-arranged may produce unnecessary fatigue and bodily discomfort, which are sure to result in inattention, poor progress, and distaste for school work. How can we judge the merits of a program in this respect? Again we have no absolute standard, and not a vast amount of experimental evidence.[1] What we have, however, shows that the order of studies is an important matter and suggests certain governing principles. These principles may be stated, briefly, as follows:[2]

1. The studies requiring the closest mental work should be placed at about ten o'clock in the morning and two in the afternoon, in accordance with the character of the so-called work-curve.
2. Recreation periods should be more frequent for young children than for older ones.
3. Studies requiring careful muscular coördinations should not follow periods of vigorous exercise.
4. Recitation or study periods should be brief and vary with ages of children.

The examination of time schedules in the light of these principles should reveal any gross defects in the matter of the order and sequence of studies.

Carrying out the program. Beyond the two problems of time allotment and order of studies come the details of practice. The survey is employed to find out not only whether the schools have good administrative machinery, good curricula, good record-and-report systems, and good work-programs, but also, are these being operated to good effect?

[1] For the best treatment of the significance of fatigue in arranging a school program, see Offner and Whipple: *Mental Fatigue.* Warwick & York, Baltimore, 1911.

[2] For a concise discussion of the application of these principles in program construction, see the author's *Classroom Organization and Control*, chap. XII. Boston, Houghton Mifflin Company, 1918.

On this point one may ask: how was the program devised, is it flexible, and is it well established in the minds of the children? There is no absolute standard upon which judgment on these points can be based. It is a matter of opinion as to what is the best way to make a program, how elastic it should be, and how well the children understand it. Accordingly, the survey will need to present the facts and to give reasons for the judgment expressed.

3. The survey of time allotment in the elementary school

How to prepare the data. In the application of the above principles and standards in the study of these three aspects of the program, we shall need certain facts. What are the actual time allotments and the actual order of studies, and how is the program made and carried on? To these facts we must apply our standards and form a judgment of efficiency. We shall now attempt to show what facts are needed, how to assemble them, and how to apply the proper standards.

Our first step is to examine the official time schedule or schedules, if such are available, and to ascertain to what extent these schedules are in use.[1] If they are not in use, then the actual schedules should be collected from teachers and principals, by schools, and brought into some suitable statistical form. Forms 34 and 35 suggest suitable plans for gathering these data. Form 34 gives us the total time devoted to each activity in each grade, and Form 35 gives us full details of how the entire school time is utilized.[2] From the totals the important facts can be quickly assembled for each school. Where the school has more than

[1] It is doubtful if the official time table, as it is usually made, is an index to the actual practice.

[2] It does not give us the number of recitations per week. This is not an unimportant detail, but one which needs only passing notice in a general survey. It does call for thorough study as an administrative problem, however.

FORM 34. SHOWING THE NUMBER OF WEEKS PER YEAR FOR EACH SUBJECT OR ACTIVITY, IN EACH GRADE

Name of School.....Date.....Principal.....

SUBJECT OR ACTIVITY	NUMBER OF WEEKS PER YEAR THE SUBJECT OR ACTIVITY IS CARRIED ON BY GRADES								
	I	II	III	IV	V	VI	VII	VIII	Total
Reading									
Language									
Grammar									
Spelling									
Writing									
Phonics									
Arithmetic									
Algebra									
Geography									
Nature Study									
Physiology									
Hygiene									
General Science									
History									
Civics									
Domestic Science									
Manual Training									
Music									
Art									
Physical Education									
Rest Periods									

one class of a given grade, separate forms should be used for each class.

Analysis of schedule. These forms will provide the raw

data from which various studies can be made. To get at the merits of the allotments we should want answers to the following questions:

1. What is the total amount of time devoted to the various subjects, in the various grades?
2. What is the time devoted to various groups of studies, by grades?
3. What is the total time devoted to each subject, in all grades together?
4. How do these displays compare with other cities?

To answer the first question it is suggested that data for all classes be assembled by grades and schools, and then combined into a table such as that suggested by Form 36. From this we can see at a glance not only the central tendency in practice, but also how individual cases vary. Knowing that there are as many cases below the twenty-five percentile and above the seventy-five percentile as there are between these two cases, it is easy to get a clear notion of the entire variety. A similar analysis of the time for groups of studies, such as those in Form 35, would be useful in case Form 36 brings out a large amount of irregularity or apparent lack of balance.[1]

The data called for by our second question are so easily obtained and so simple to arrange that it seems unnecessary to illustrate such an array. When we combine all the English work into one group we do away with many details, so that when we express the results as percentages of total time we can see clearly how well balanced the curriculum is.

Our third question is answered by the data called for in the right-hand columns of Forms 34 and 35. The number of

[1] For comparative data the reader is referred to the survey reports listed at the close of this chapter. Also see references cited in other footnotes in this chapter. As such data change rapidly, it seems undesirable to present actual cases in these tables.

FORM 35. SHOWING, BY GRADES, THE NUMBER OF MINUTES PER WEEK DEVOTED TO EACH SCHOOL ACTIVITY

Name of School..... Date..... Room nos.....

SUBJECT OR ACTIVITY	NUMBER OF MINUTES PER WEEK BY GRADES																	
	I		II		III		IV		V		VI		VII		VIII		Total	
	S.[a]	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
Reading.....																		
Language.....																		
Grammar.....																		
Spelling.....																		
Writing.....																		
Phonics.....																		
Total for group..																		
Arithmetic.....																		
Algebra.....																		
Total for group..																		
Geography.....																		
Nature Study...																		
Physiology.....																		
Hygiene.....																		
General Science																		
Total for group..																		

[a] S = study; R = recitation.

FORM 35. SHOWING, BY GRADES, THE NUMBER OF MINUTES PER WEEK DEVOTED TO EACH SCHOOL ACTIVITY (*continued*)

SUBJECT OR ACTIVITY	NUMBER OF MINUTES PER WEEK BY GRADES																	
	I		II		III		IV		V		VI		VII		VIII		Total	
	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.	S.	R.
History																		
Civics																		
Domestic Science																		
Manual Training																		
Music																		
Art																		
Physical Education[b]																		
Total for group																		
Rest periods																		
Total minutes in week																		
Pupils enrolled																		

[b] Do not include regular recess time in physical education, or vice versa. Rest periods should include the total of forenoon, noon, and afternoon recess periods.

FORM 36. SHOWING ANALYSIS OF TIME ALLOTMENT, BY GRADES. FOR ALL ELEMENTARY SCHOOLS

SUBJECT	MINUTES PER WEEK, BY GRADES									
	I			II			Same procedure with other grades	VIII		
	25 per-centile	Median	75 per-centile	25 per-centile	Median	75 per-centile		25 per-centile	median	75 per-centile
Reading...										
Language..										
Grammar.										
Other subjects in order...										

minutes per week (from Form 35) times the number of weeks (from Form 34) will give us the amount of time devoted to the subject through the eight years or less during which the child pursues the branch in question.

The interpretation of such analyses. So far we have the facts before us. We can have them arranged by schools, by studies, or by groups of studies, as we choose and as circumstances seem to require. If we find a wide range in any of our arrays we may desire to look further. So far it is a question of central tendency in practice and of the amounts of deviation from that tendency. If one school teaches spelling for a total of four hundred hours in eight years, and another a total of eight hundred hours, and children from the two schools are promoted in equal numbers to the same high school, then we know that something is wrong. Results of tests will help us to determine what. It may be that one teaches too much spelling or the other too little. Our curriculum survey should look into this. It may be that one

has not really obtained good results, and that promotions have taken no note of this weakness. This our tests will find out. It may be that one school simply wastes time that could better be given to some other study. If the children who spent four hundred hours can spell as well as those who spent eight hundred, then the former school either has brighter children, or better teachers, or better methods of teaching, or some combination of these in its favor.

Measuring by comparison. Beyond this examination of the variation in practice we must turn to a comparison with practice elsewhere as our only standard of measure. In this the first figure should be on total time per subject. For this Form 37 suggests a tabulation showing the total number of hours devoted to each subject, and the percentage distribution of this total time. From such a table it can readily be determined whether the city occupies an exceptional position in any of these respects.

It would be possible to make similar comparisons by grades if it seemed desirable. That is, instead of taking the

FORM 37. COMPARISON OF CITIES ON BASIS OF TOTAL HOURS DEVOTED TO EACH SUBJECT, AND PERCENTAGE THIS IS OF TOTAL TIME

SUBJECT	TOTAL NUMBER OF HOURS AND PERCENTAGE OF TOTAL TIME DEVOTED TO SUBJECTS (the figure used is the median of all classes)									
	Hours, City A	Per cent of total	Hours, City B	Per cent of total	Hours, City C	Per cent of total	Hours, our city	Per cent of total	Hours, average	Per-cent of total
Reading										
Language										
Grammar										
Other Studies as in Form 34 above										

total hours for all grades, take total hours for one grade only. This would have the same value, though many variations should be expected because of fully warranted differences in curriculum organization. Again, comparison could be made on the basis of standard or average deviation from the median or average, with a view to showing the city's position among cities on this point. However, aside from the totals dealt with in Form 37, one can reach satisfactory conclusions by a careful inspection of the data without inter-city comparisons, if full use is made of facts gained in other parts of the survey.

4. Time allotment in the high school

Measuring the total time per subject. In the high school we have not one but usually several curricula, and, where there is wide freedom of election, there are almost as many different curricula as there are pupils. In considering the amount of time devoted to the different studies we must keep in mind that the total amount of mathematics or English offered in the high school is not (outside of required courses) an index to the amounts of these subjects taken by any one student or any separate group of students. The amounts offered, times the number of children taking each course, is the important figure. This is largely a problem in curriculum organization, and has been dealt with above. Here, however, we will do well to examine facts which will show how the high school time is used. For this purpose the number of "pupil-hours" is the best figure.[1]

Arrangement of data. These facts can be shown clearly when tabulated as suggested by Form 38. Here, for either semester of any one of the years, or for the four years combined, we can see exactly how much of each subject is being

[1] A "pupil-hour" is one pupil spending one hour per day for one semester or one year — the latter preferred.

FORM 38. SHOWING HOURS PER DAY DEVOTED TO EACH SUBJECT EACH SEMESTER FOR EACH CLASS, AND THE TOTAL "PUPIL-HOURS" OF EACH SUBJECT TAUGHT

SUBJECT	NUMBER OF HOURS SUBJECT IS OFFERED AND NUMBER OF PUPILS TAKING SUBJECT												Total amt. time devoted to study	Total no. pupils	PER CENT OF ALL PUPIL-HOURS
	Freshmen			Sophomores			Juniors			Seniors					
	Hrs.[a] per day	1st Sem.	2d Sem.	Hrs. per day	1st Sem.	2d Sem.	Hrs. per day	1st Sem.	2d Sem.	Hrs. per day	1st Sem.	2d Sem.			
English.....															
Chemistry.....															
Other subjects....															

[a] If a subject is given but one hour a day for three days a week, it would be counted as three-fifths of an hour.

imparted. In the study of costs we may desire to give these figures financial expression. This is often necessary to make any criticism of the showing effective.

The subjects could be arranged by groups in column one of this table, so that group totals could be inserted if desired. Such totals are likely to be needed in some schools, if not in all. It is obvious that the data called for in Form 38 should be studied by schools, and only totaled for all schools when the schools are alike in aims, curricula, and student bodies.

From such an array one can see at a glance where the school is putting its energy. If we cannot say exactly how much English, or Latin, or algebra the school should teach, we can at least detect gross abuses. A high school in which large numbers spend but one or two years, and then leave to enter shops and petty clerical positions, should show a relatively large number of pupil-hours in the branches which these activities suggest, and not too many in Latin, algebra, and ancient history.

It is in the light of facts such as these that we are able to judge this time allotment. Are the majority of the pupils of the school to graduate and then go to college? Are many of them training for specific jobs which they hope to secure after a year or two in high school? Are boys and girls equally well cared for? Questions such as these indicate our method of study and our basis for criticism and suggestion.

5. The order of studies

Types of programs. The arrangement of the day's work will necessarily depend upon the character of the curriculum and upon the plan of school organization. If the Gary idea of organizing the work under four heads: academic, special (shop, science, domestic arts), physical training and play, and auditorium activities — each having a definite portion of the day — be followed, then obviously the order of studies

will be different from that provided by a program under the usual arrangement. If the day is eight hours long, as at Gary, rather than four to five, then that may also make a difference.

The application of our principles. What is wanted is an arrangement that will get the best possible results; for example, utilize the child's energies to the best advantage. Here we need to have copies of the daily program before us and a clear picture of the work curve in our minds. If we find that arithmetic and grammar are placed at the end of the day we know that that is wrong. These are difficult studies, and at that hour the child's energy is at a low ebb. If we find physical drill or folk-dancing or singing at ten o'clock or two o'clock, we should have a case just the opposite, namely, easy studies at the hours when work power probably is at its best. If we find writing or drawing following immediately after play periods, or late in the day when the child is tired, we know that that is expecting fine muscular coördinations under the most difficult circumstances. A high-school child should not go from the football field to make drawings of what he sees in a microscope.

The experimental knowledge so far available does not warrant the belief that any except such gross misadjustments as are here suggested should be criticised adversely. Where play periods are close together, and where there is more or less moving about in the room or between rooms, the dangers from fatigue in properly ventilated school rooms are slight for any except children of low vitality, and for these we shall speak later in our survey of health conditions.

6. Other details

Making the program. As a usual thing an elementary school program has to be made for an entire building, and sometimes other buildings are concerned, as, when children

go to another building for special studies. Coördinations are necessary. The play apparatus must be made available for all, and often this cannot be done without having play periods at different hours for different rooms. There is but one auditorium and but one library, and various pieces of teaching equipment must go from room to room. To keep down overhead costs, to make opportunities equal for all, and to get the best teaching done the program must be seen as a whole.

Most persons, including teachers, can carry out best the plans of their own making. The reason for this is plain. If I see a baseball game between two strange teams I have no feeling of interest as to who wins. I am only anxious that clever plays shall be made. I am only a spectator. If I had trained one of the teams I should then be a partner or shareholder and would have much feeling in the matter, and if I were a member of one of the teams this feeling would be even more intense. The idea of this partnership interest is an important one in school administration, and particularly so in the matter of making programs. The principal must be the coördinator. He must furnish the unified, central viewpoint, but for details of adjustment within each room teachers know the needs best. If the principal makes the program and "hands it out" to the teachers, it is poor administration, even though it may require less time. The making of a program is a joint concern. The principal who is afraid of friction, argument, and delay, and the principal who likes authority and lacks capacity for real executive leadership, prefers to do it all without help. Our inquiry here is, was good administrative method followed in making the program?

The child and his program. Another test of successful operation is whether the children really work to a program. In the elementary school as well as in the high school, pupils

ought to get the routine of their work so well fixed in mind that the teacher does not constantly have to watch to see that they study the right subject at the right time. This is a point at which the survey can put a check on the teacher's management. Is there a copy of the program posted in the room where it can be seen by all? Does that program show what is to be studied as well as what is to be recited? A little inquiry from teachers on this point will show whether the problem has been consciously dealt with by teachers, and how and when. By such information important evidence of teaching success, useful in connection with study of tests and teaching procedure, may be obtained.

Elasticity in a program. Another check of the efficiency of operation is the provision for adjustments to special cases. Is the program unalterable, or may a teacher vary from it on certain conditions to meet special needs? One child may be ahead of his class in history and behind in arithmetic. The entire class may be ahead of requirements in one subject and behind in another. One recitation period may be too short to carry out certain exercises, or longer than is necessary for certain others. A good program will always be flexible in these respects, so that the teacher can make these temporary adjustments. Facts on these points will need to be obtained by inquiry. We want to know not only whether it is possible for the teacher to make such adjustments, but also whether she actually makes them.

QUESTIONS FOR CLASS DISCUSSION

1. Should there be one official time schedule for the schools of a large city? If such a schedule were in use as a general guide, how would you proceed as school principal in preparing the schedule for your school?
2. Can we say that the time spent on a subject and the results of teaching that subject vary directly? Do you know of any evidence bearing on this question? Do you think the principle of diminishing returns might have to be taken account of because:

a. The first increment of time above a given amount might count for relatively more additional achievement on the part of the pupil than would be true of the fiftieth increment, and, though each successive increment of time might add some amount of success, the amount would grow smaller and smaller with each addition until it would approach zero.

b. After a certain degree of success has been achieved (as in writing for instance) further perfection of the writing skill is not worth anything. That is, the value of successive increments in quality of product tend to diminish as the additions increase in number.

3. Should it be possible for a teacher to vary from her regular time schedule at will? Would this be desirable in high schools where time is a factor in determining college entrance values?
4. Consult survey reports for a discussion of the merits of the supervised study plan of instruction.
5. If in a survey, or as supervisor in a visit to a classroom, you found the children quite without a knowledge of their own study and recitation program, what would be your conclusions?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Make a study of the facts on time allotment presented in the survey reports listed as references below.
   a. What is the median or average total time devoted to each of the elementary school subjects in those cities?
   b. What is the range in these figures for each subject in each of the cities?
2. Make a study of official or suggested time-allotments as presented in a selected list of city superintendents' reports, or printed courses of study.
3. Make up an elementary school time schedule, representing your best judgment after a careful review of the books and articles on these subjects. (See bibliography in *School Administration and Supervision* for March, 1916 — article by Sears, J. B.)
4. Let each member of the class make a detailed study of the time schedule of some city school, and then bring their figures together into one study, after comparison has been made between the separate schools.
5. Obtain a collection of school programs, both rural and city, and examine them with reference to the order of studies, preparing comments on the right or wrong use of the principles here presented.
6. Draw up a plan for making a program for a sixteen-room school. Show exactly how the principal would proceed in a wide variety of situations, such as disagreements between teachers, weakness of certain teachers in certain lines of work, a poorly graded class, inadequate number of maps, small play space, rainy days, and the like.

7. Prepare a program for a small four-year rural high school, another for a city high school in a good residential section, another for a high school in a stockyards district.

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Judd, Charles H.: *Introduction to the Scientific Study of Education*, chap. XVIII.

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CHAPTER XII

THE SYSTEM OF GRADES AND MARKS

1. Class marks in school administration

Importance of class marks. We have no school systems, large or small, in which there is not some kind of machinery in use for evaluating the work the children do. It is a necessary part of the machinery for administering the curriculum of the school. Because of the wide use to which such measures are put, the survey should undertake a careful examination of the system and of the results of its operation.

The systems of measures in use vary all the way from a personal judgment of the teacher to a careful use of objective standards. The results are used almost everywhere as a basis of classification and of promotion from grade to grade, for adjustment in case of transfer, as a basis for entrance into high school and college, and for granting scholastic honors, scholarships, and recommendations. Records of such marks color the judgments of all who have reason to examine them, and have much to do in determining the child's general social status both in school and out.

With such wide use it is important that school marks should stand for something very definite; that they be used only when the thing for which they stand constitutes a good reason for the action or procedure that is based upon them; and, finally, that they should be satisfactorily administered.

The survey problem. It will be the function of the survey to examine and criticize the system in use. If these demands are fully met then we should find complete agreement among teachers and supervisors as to what the marks measure, as to the uses that are being made of the marks obtained,

and as to the administration of marks in classes and schools. In brief, then, a survey must find out:

1. Whether marks are measuring what they should be used to measure.
2. Whether satisfactory teaching and administrative use is made of the marks obtained by children.
3. Whether the marks are properly administered.

It will be the further purpose of this chapter to explain what data are needed, and how to gather and analyze the data in a way that will make it possible to point out the good and bad features of the system in these respects.

2. The system in use

Our first need is for a description of the plan in use. Where a system has been officially adopted an explanation of it is usually to be found in print, and may be obtained from the superintendent's office. Some explanation of it will usually appear on the pupil's report card. Further than this we shall want to know whether there is one system in use throughout all schools, or whether each school or class of schools has a system of its own.

Efficiency of the plan as such. It is trite to say that a single plan of marking for all schools is better than many plans. This may be open to question if the marks under one plan can be accurately and readily converted into those of the other plans. Where more than one plan is in use, therefore, some justification for it must be sought, as, other things being equal, it is a mark of administrative inefficiency.

The essential features of any plan are: first, the unit of measure; second, the number of units in the scale; third, the points of the scale which mean "failure" and "condition"; and fourth, the symbols used. If we mark on the scale of 100 the common assumption is that the unit of measure is one, and that in all the scale includes 100 units. We may

choose 60, or 80, or any other point as the "failure" point. Instead of figures we may use letters, as "A," "B," "C"; or even words, as "good," "fair," and "poor."

What we want in all of these is something that we can use with the greatest possible degree of accuracy without its being too difficult to apply. There is no purpose in having a unit that is finer than any distinction we can make. We have evidence to show that a grade of 81.3 per cent on a 100-point scale, where 70 or below is failure, is absurd, because we cannot make such fine distinctions.[1] These same studies show that at best we cannot depend upon ourselves to recognize anything smaller than from five to ten such points. In other words, in the ordinary examination, we can sort the papers into about a half-dozen groups, ranging in quality from the poorest to the best. Since that is the extent of our ability to discriminate in quality, then a marking system with more than five to ten divisions is not efficient but is misleading.

Again, if, on a 100-point scale, 70 is the failing point in one school and 60 in another, the plan is inefficient, since the marks in such cases are not comparable. What symbols are used is of no great consequence so long as they are uniform and convertible. With these facts in mind we can readily say whether the plan is good or poor. If it is a poor plan, then the best possible use will be poor. If it is a good plan, then poor results can be attributed to its administration.

3. What the marks measure

Information needed. To be comparable marks obviously

[1] For a discussion of the marking unit, see Finkelstein, I. E.: *The Marking System in Theory and Practice* (Baltimore, Warwick & York, 1913); Starch, D.: "Reliability and Distribution of Grades"; in *Science*, N.S., vol. 38, p. 630; also his *Educational Measurements* (New York, The Macmillan Company, 1916); and Cattell, J. McK.: "Examinations, Grades and Credits"; in *Popular Science Monthly*, vol. 66, p. 367 ff.

must stand for stated amounts of exactly the same thing or things. If in one school they stand for native ability, in another performance, and in a third interest and effort, then they are not comparable, and probably ought not to be used for the same purposes. In some cases printed statements of what marks are to be used for may be available. Even so, however, it would be well to obtain from each principal and supervisor a statement of:

1. What the mark is supposed to measure.
2. Whether the teachers are consciously using the marks in the required sense.
3. How this meaning of marks was decided upon.

If it is clear from these replies that the question has not been systematically handled, it might be wise to get a sampling of replies to the first question from the teachers themselves.

Interpretation of findings. If we find no understanding of the problem, or a lack of agreement, we know in reason that the system will prove ineffective. If there is a common acceptance of one meaning, and this appears to be in use, we have still to pass judgment on its merits. Accordingly, we shall need to set down criteria for judging the usage in vogue.

At the outset we must say that there is no complete agreement as to precisely what is measured by examinations. From the standpoint of administration, however, a much more important question is, What is it that the schools need to have measured? We teach history, spelling, music, and algebra, and give tests in these subjects. What do we expect or want to find? As a practical consideration we want to know how well the child has mastered the assignments upon which he is examined. If he knows the history or Latin, or can display the proper degree of skill in singing or drawing or dancing, then we know how much ground has

been covered.[1] It may be of interest to know other things, such as native intelligence and the interest and effort of the child, but no amount of these will pass for actual accomplishment. We may have use for a measure of these, since they are factors in success, and we may want to measure them along with accomplishment. The point is they are different things. Each has contributed to success in the examination, but, as a practical matter of administering a curriculum, accomplishment is the tangible result of their application to school subjects and the mark should stand, not for what of these went into the subject, but for amount of subject mastered.

For administrative purposes one mark for native intelligence, another for accomplishment in studies, another for effort, and another for interest will be far more useful than any one single mark standing for a composite of all these. The reason for this is, first, that no two teachers will be able to use the same amounts of the same ingredients in making up a composite mark, and second, that the separate specific marks are useful for different purposes whereas a composite mark serves no purpose very well, since we are never sure of its meaning. We may say then that if marks are given on the basis of several things, they will be less useful than if separate marks are given for separate things.

[1] The curriculum is organized with reference to the child's capacity and interests, and with reference to the demands which society places upon him. It is the business of the one responsible to include only such subject-matter as will be useful to these two ends. Presumably each study is included because it is believed that it will have some specific effect on the development of the child. It seems that we might work on the assumption then that when a given amount of subject-matter has been learned, a given amount of change will have been made in the individual who learned it. Our task would then be to find out how much he has learned. In other words, what specific accomplishment does he show.

4. What use is made of marks

What the schools are measuring. In Part III we shall deal at length with measurement. Here we wish to know what the schools give marks for, and what administrative procedure is based upon those marks.

The following measures have been found useful: accomplishment in each subject, quality of deportment, industry, and mentality.[1] Accomplishment is measured in some cases by use of educational tests, and everywhere by use of ordinary tests and examinations. The deportment mark is usually a rough expression of the teacher's judgment, though crude and even absurd systems of demerit marks are sometimes used. These have the questionable merit of giving such marks the appearance of being quantitative measures. Industry or effort marks are similarly based upon rough personal judgments of the teacher. Mentality measures are expressed as I.Q., or as mental age, and are based upon individual or group standard tests. Our inquiry is, What of these measures are the schools carrying out?

What the marks are used for. School marks are properly used for the following purposes:

1. To inform the teacher and supervisor of the child's progress. The mark (if for a specific thing) is an index to progress and a key to the instructional, managerial, and supervisorial needs of the child.
2. To inform the child and the parent of the child's progress.
3. As a basis for a reclassification of the child.
4. As a basis of educational and vocational guidance.
5. As a basis of recommendation for honors, position, or college entrance.

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[1] If we use "marks" in the widest sense, we should include all items of information about the child: race, health, attendance, tardiness, social character of home, and other details. Our main concern in this chapter is with marks given for the usual type of subject-matter examination.

Our concern here is to know whether the schools are consciously attempting to use them for these purposes. To find this out, definite inquiries will have to be made. First, we should examine the file of pupils' cumulative record cards. This will show not only what marks the schools have planned to record, but what they actually do record. We should then examine children's report cards for the same purpose. With these facts in hand we are then prepared to look for the uses that are made of these records.

Our inquiry may well begin by a study of the basis of promotion.[1] What marks are used to determine whether a child shall be changed to another grade? Is this basis the same throughout the city? For instance, suppose promotion in grade six is based upon five marks, as follows: reading, language, arithmetic, geography, and hygiene. Our inquiry is: What is the passing mark in each, what is the average or combined mark that determines the matter, and are these subjects and standards the same in all sixth grade classes in the city?

Marks a basis for promotion. As pointed out in Chapter VIII, an efficient system of grading is elastic in the sense that it meets the educational needs of each child. Ideally we should promote by subjects and not by grades, yet, theoretically at least, there is no reason why we should not have our subject-matter so organized as to make it possible for a child to keep all his subjects abreast. This ideal is not easily attained in practice, however, and so in the elementary school we accept the compromise of basing promotion, not upon all of the subjects of any grade, but upon from two to five or six. Here we may set it down that the system using the fewest subjects as its basis is, other things being equal, the most nearly adjusted to the child's needs, and hence the most efficient.

[1] For methods of surveying the larger aspects of the grading and promotion machinery, see Chapter VIII.

It should be easy to find, in print or from principals, what marks are used as a basis for promotion, how these are combined into a single mark, and whether a single system prevails throughout the city. To these facts our principles can readily be applied.

Other uses of marks. Vocational and educational guidance will be treated in a separate chapter. One other use of marks which the survey might look into is the use of marks for recommendation to college. The main thing is that there be uniformity in all the high schools, and that the mark be high enough to guarantee that the student will be able to go forward in college in any subject in which he has been recommended.

5. The administration of marks

Supervision of the marking system. Through the careful supervision of the marking system a superintendent, or other designated person, can exercise large control over the entire instruction, organization, and management of the children. This matter of supervision will be referred to in Chapter XV. Here we shall ask:

1. Is the distribution of marks a reasonable one?
2. Are the marks of teachers of the same subject and grade comparable?
3. Are marks in one subject comparable with those of another subject in the same grade?
4. Are the marks for one school grade comparable with those of another grade?
5. Are failures and promotions in all subjects based upon definite marks?

First of all we should find out what rules are in force governing these matters. To be comparable, two marks or groups of marks must stand for definite amounts of the same thing. To have common standards of promotion the same amounts of accomplishment in any subject must mean a

given amount of accomplishment in that subject, and not in some other. A reasonable distribution of marks must correspond roughly to the normal frequency curve.[1] On a five-division scale, as A, B, C, D, and E, Cattell has proposed the following percentage distribution of the class marks: 10 per cent A, 20 per cent B, 40 per cent C, 20 per cent D, and 10 per cent E. Meyer proposed 3, 22, 50, 22, and 3 per cent. Dearborn proposed 2, 23, 50, 23, and 2 per cent; and Cajori, 7, 24, 38, 24, and 7. Except in case of very small classes a very marked departure from these types, an important feature of which is perfect symmetry, can be regarded as a mark of inefficiency.

Distributions of marks studied. Finally we come to an examination of the actual marks recorded by the teachers. If there are rules governing the distribution of marks, then a few sample studies will show us whether the rules are being followed. If they are not, or if there are no rules, then the survey must examine as many groups of marks in both elementary and high school as seem necessary to furnish a basis for judgment as to the efficiency of the use of marks. Sample forms for the assembly of the data needed will be presented.

Marks in a given subject. It is of course not true that all fourth-grade arithmetic classes in a large city are equal in native ability. We know something about how they vary, from community to community, and the better school systems are now measuring mental ability and making records of scores for all the children. From such records differences between classes can be stated rather definitely. The marks

[1] This is not a settled question. Studies of teachers' marks by Cattell, Meyer, Dearborn, Finkelstein, Cajori, Rugg, and others show that distributions are almost invariably skewed toward the high end. For a review of a number of studies, see Rugg, Harold Ordway: "Teachers' Marks and Marking Systems"; in *Educational Administration and Supervision* (February, 1915.)

for ordinary tests and examinations are supposed to be given, not for native ability, but for accomplishment in the study. If we maintain real grade standards for the school subjects, then fourth-grade marks must be given only for the amounts of accomplishment decided upon as standard for work in grade four.

This does not mean that those who pass a test in one school will get exactly as high marks as might be obtained by a similar group on the same subject in the same grade in another school. More may fail in one school than in another. Yet in all cases except where we have large mental differences we should expect the distributions of marks by all fourth-grade teachers to be very much alike. Form 39 suggests a plan for assembling data for such a study. In this Form the letters are used. Figures could be used as well, and more steps could be added if the practice required it.

By such an assembly for all fourth-grade teachers of the subject in question, so that both the whole number and the percentage of A's, B's, C's, D's, and E's can be seen at a glance, it is possible to say whether fourth-grade success in one case is the same as in another, regardless of whether it is in the same school or not. Similarly, distributions for different subjects could be compared. If large numbers of low marks are given in one subject and few in another, it is fair to assume, either that the organization of the curriculum is imperfect, or that there is a wrong allotment of time to the two subjects — it being too little in one case and too much in the other. In this way a study of class marks becomes a check upon the organization and administration of the curriculum. Such studies are needed also to locate the causes of retardation which, in turn, has an important bearing on school costs.

Possible studies of marks. What studies of marks will be necessary cannot be told in advance. Brief samples of

FORM 39. FORM FOR ASSEMBLING TEACHERS' MARKS FOR ANY GIVEN SUBJECT, IN ANY GIVEN GRADE

SCHOOL	No. OF ROOM 4TH GRADE	DISTRIBUTION OF TEACHERS' MARKS													
		A		B		C		D		E		Dropped from course		Total	
		No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Garfield..	8														
Whittier..	12														
Grant....	19														
All schools combined.															

marks in a number of directions may be adequate to show either that the system is excellent and working smoothly, or that it is poor. If the latter, then a more thorough study is necessary. The following samplings are suggested:

1. Marks by teachers of some subject in the same grade in the same schools.
2. The same, in different schools.
3. Marks of teachers in different subjects, in the same schools.
4. Marks in one school as compared with marks in other schools.

TABLE 25. SHOWING PERCENTAGE OF MARKS OF EACH QUALITY GIVEN IN ALL SUBJECTS IN THE BOISE HIGH SCHOOL, FROM SEPTEMBER, 1917, TO FEBRUARY, 1919

SUBJECT	MARKS								TOTAL
	1−	1	2	3	4	Cond.	5	Dropped	
English	3.3	14.0	28.6	28.4	11.4	1.9	2.9	9.5	100.0
Soc. Sci.	1.3	12.0	23.0	30.3	12.0	1.2	7.0	13.2	100.0
History	3.0	15.0	26.0	29.7	10.8	5.0	2.0	8.5	100.0
Math. Adv.	2.4	16.5	27.1	25.1	13.7	1.9	5.5	7.8	100.0
Math. 1 yr.	2.8	16.4	25.8	25.2	2.4	1.4	3.0	12.0	100.0
Gen. Sci.	2.7	27.0	19.3	32.5	5.0	0.0	13.5	0.0	100.0
Phys. and Chem.	2.1	17.3	30.3	29.2	7.0	4.8	1.5	7.8	100.0
Biology	1.6	12.3	27.0	32.0	18.0	1.5	2.1	5.5	100.0
Latin	6.5	13.1	25.5	26.8	12.4	4.1	5.6	6.0	100.0
German	6.0	18.3	27.4	21.2	7.4	2.2	4.2	13.3	100.0
Fr. and Span.	6.5	17.8	25.0	21.3	9.8	3.1	5.5	11.0	100.0
Agriculture	2.3	12.0	34.5	24.4	12.0	0.9	5.0	9.0	100.0
Man. Tr.	2.0	14.2	24.0	28.0	4.0	2.8	5.0	10.0	100.0
Mech. Dr.	3.2	14.0	22.0	25.5	12.0	4.8	3.5	15.0	100.0
Home Econ.	2.7	18.3	28.7	28.5	11.0	2.3	1.2	7.3	100.0
Typing	5.0	22.0	18.5	20.5	13.5	7.0	3.5	10.0	100.0
Shorthand	2.0	17.0	25.5	26.5	14.0	3.0	4.0	8.0	100.0
Bookkeeping	1.2	13.2	25.0	23.0	9.5	13.0	6.5	8.6	100.0
Art	0.9	15.0	28.0	36.0	8.0	5.1	1.0	6.0	100.0
Expression	1.1	14.0	33.5	30.0	6.4	6.5	1.0	7.5	100.0
Music	3.3	15.0	33.0	30.3	10.4	3.3	4.0	0.7	100.0
Per cent of total	3.1	15.7	27.0	27.2	11.3	3.4	3.3	9.0	100.0
No. cases	488	2473	4268	4300	1780	556	534	1407	

As an illustration of a survey of high-school marks, Table 25, which is a copy of Table 45 in *The Boise Survey*, is

presented. In discussing these figures in the report, Dr. Proctor points first to the evidence that the Boise rule governing the distribution of marks had been effective.[1] This one can see at a glance. A "1" means approximately the same thing in all departments. Further, however, the report says: "That 1407 pupils should have been permitted to drop courses during two and one half years indicates that proper care and guidance were not exercised in admitting pupils to courses." One has to study this table but a very few minutes to see the force of this comment. It is largely because such figures are not regularly assembled and studied that our schools go on wasting time and money, and training children how to fail. Not the least distressing aspect of this is the feeling of virtue many teachers have at the thought that their courses are so "stiff" that not everybody can "make them."

QUESTIONS FOR CLASS DISCUSSION

1. What should class marks stand for? What should they be used for? What is the best form of mark to use?
2. Why might a survey give some attention to the class marks as recorded, and to the use made of them by a school system?
3. What argument is there for having a standard as to the distribution of marks in a class? What is the best standard to use? Should low marks in conduct affect scholarship standing?
4. Should promotion or the granting of credit be based on one or a combination of several marks? Should promotion in the grades be based upon marks for all, or for only selected studies? Should a low mark in the first half of a year course in high school be replaced by a high mark earned in the second half?
5. Should we accept the proposition that some failures in a school course are inevitable, or is that an admission that the administration is not ingenious enough to solve one of our important problems?
6. If class marks had been made the subject of thoughtful study in the

[1] The rule was that each teacher must plot the curve of her marks given at the end of each six weeks of school work, and at the end of the semester. If the curve varied materially from the curve of distribution for the entire school, then the teacher was asked to justify this deviation to the principal.

Lawrence, Kansas, High School the year previous to the survey, does it seem possible that the figures of Tables 8 to 15 might have been different? (See also the *Philadelphia Survey Report.*)

PROBLEMS FOR INVESTIGATION AND REPORT

1. Explain how a study of teachers' marks will throw light upon:
   a. The organization of the curriculum.
   b. The daily time schedule.
   c. The causes of retardation.
   d. The efficiency of instruction.
   e. Promotion standards and grade norms.

   What survey reports have used such studies to these ends?
2. Summarize the conclusions of recent studies of teachers' marks on the relation of size of class to form of distribution of marks.
3. Outline a plan for making an exhaustive study of the marks given in a single high school, indicating the specific questions that are to be answered by such a study.
4. Describe fully the marking system now in use in a given school system, and show what are the strong and weak points of the plan and of the rules governing its administration.
5. Obtain from superintendents' reports, school manuals, and other printed sources, as well as from school principals in a large number of high schools, a statement of precisely what school marks are used to measure.
6. Make a study of just what use is made of school marks in a given school system, learn precisely what the marks are supposed to measure, and then say whether the uses to which the marks are being put can be defended.

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CHAPTER XIII

EDUCATIONAL AND VOCATIONAL GUIDANCE

1. The survey problem

The guidance movement. Guidance is a relatively new idea in public-school work, and as yet it can hardly be regarded as well established. What the function is is not entirely clear. How to carry on the work is even less clear, as are also any adequate methods for evaluating the service when rendered.

Even a casual study of the movement as it is proceeding to-day forcefully reminds one of the rapid changes that are taking place in the relationship of our whole scheme of education to our whole scheme of social, intellectual, and economic life. The time was, only a few decades ago, when entrance to all but two or three callings was by way of apprenticeship, or nothing at all, but certainly not by way of special training. Then, relatively few went to school beyond grade five or six. The curriculum consisted largely of the Three R's, and the higher curriculum was in the main unrelated to life careers. Then, however, careers were not highly specialized. Son followed father and there was little moving about. Education aimed to discipline the mind and prepare for general social and moral life. Now all this has changed. Occupations are specialized, and many of them are more or less technical. The easy opportunities for making a living by primitive methods are gone.

In the face of these changes it has gradually become clear that the school must have, not only a general aim, but many specific aims; that courses, equipment, staff, and buildings must be designed and organized with reference to these many specific purposes; and that children must be helped to

find their way through this new maze, each to his or her own proper goal. When a pupil enters a modern school system to-day his educational objective is not as apparent to him as it would have been a short while ago. The old curriculum was largely an end in itself; now it is a means to an end — to an end which lies out beyond the school in a career. It is to orient the child with reference to this remote and obscure end that the function of guidance has found a place in our schools.

The problem stated. In a school system where the child is left to find his own way there certainly will be waste and disappointment. Accordingly, a survey of the schools with reference to the way in which this function is carried out is necessary. It may be that in time we shall learn to organize our work so well that a child will move automatically along the route best suited to his needs. At present our machinery is not equal to this task without the addition of special guidance devices. These devices are, in a sense, emergency equipment. In time they will be so fully coordinated with other parts of the organization that they will not be thought of as special additions to the school machinery.

It is the problem of the survey to discover whether this is provided for. If it is provided for, is the treatment superficial and the equipment temporary, or is this new piece of machinery fully adjusted to the main scheme of things? If no provision is made for it, then what steps should be taken?

To answer these questions the survey must have a clear conception of the guidance function; it must be able to recognize any forces that are operating to this end; it must know how to bring to light the need for guidance; and it must be able to evaluate the service if it is being rendered.

In this chapter we shall attempt to present a brief explanation of the guidance function, and to show how to pro-

ceed with a study of this aspect of school management by showing what facts are needed, and how to assemble them for study.

2. The guidance function

Guidance and the curriculum. There is obviously no such thing as guidance except with reference to some end. That end may be immediate or remote, but always stands as a constant factor in the situation. Similarly, guidance implies that there is some one to be guided toward the end in question. The school curricula, as explained in Chapter IX, are supposed to have been constructed with reference to certain desirable educational ends. If properly followed it is assumed that these courses will lead children to certain moral, æsthetic, social, intellectual, and occupational objectives. Thus, one step in guidance seems to be the preparation of courses of study that will lead straight to these desirable goals.[1] Because of the fact of individual differences we must provide many courses rather than one. These courses must be organized into curricula, and made as easily available as possible. If these courses contain the best of materials, selected with reference to the most desirable ends, and are grouped in the best way, it will still be necessary for the child to select the courses best adapted to his own needs.

If the child knew his own needs and were free to prepare his own program he could be his own guide. However, as a child's needs and likes do not always correspond, and as it is not easy to anticipate the aim and content of each course from its catalogue name, we can hardly expect a child to find his way about. Curriculum organization — for example, required courses, certain sequences, prerequisites, combina-

[1] This does not mean that the director of guidance is to make the curricula.

tions of courses, limitation of electives, and limit on size of classes stand as guideposts to all who enter school, and must be thought of as guidance machinery.

Guidance and organization. In a similar way the scheme of school organization furnishes other guideposts, pointing the way so clearly that a child can hardly go amiss. Schools, grades, and classes are organized with reference to accepted educational goals and with reference to known educational needs. The ungraded room and the opportunity class are further specializations of these provisions. Buildings, grounds, and equipment are similarly designed with reference to definite purposes. The shop, auditorium, gymnasium, library, and museum are special channels, and the scheme of child organization takes the child step by step through all these, each to his particular type of school, to the proper grade of work, and to the right courses, classes, and activities.

Such structural parts of curriculum organization and of administrative machinery are accepted as matters of course. Their fundamental purpose is not control alone; it is also guidance, and until recently we had no other guidance machinery.

The function of guidance as here conceived is that of supplementing or expanding this well-established school mechanism so that there may be less waste energy. Somehow we have not increased our guidance facilities as rapidly as we have increased the complexity of the educational maze through which an ever-increasing number of children are trying to pass, and, as a consequence, numbers of children are on the wrong path, are losing sight of their proper goals, and the result is waste. It is to meet this issue that a plan of guidance must be devised.

Guidance and the child. In supplementing this guidance machinery our point of departure must be the child. To

prevent him from entering upon the wrong scholastic program we must try to foresee the course he ought to pursue. This is the point at which the old and coarser machinery was weak. It recognized failure but failed to forestall it. Our first inquiry is, then, what should the child do? We wish to set up for him specific social, intellectual, æsthetic, and occupational goals, and to outline for him a definite plan of procedure. In doing this we do not want to destroy his own initiative or to introduce needless "red tape."

Obviously we must know the child and see to it that, in reasonable measure, he knows himself. Having in mind his education and the relation of that training to a career in life, we must get at the facts which are bound to determine the possibilities and the desirabilities in the case. These will include facts about mental ability, social and moral capacity, emotional equipment, physique, and occupational capacity. On these points guidance must seek definite information.

Guidance and a life career. If we are to train a child so that he will be better able to find his part in the world's work, and if we are to equip him for doing that part, we must give him some idea of what the world's work consists and what it means to choose a part in it. We must teach him how to make this choice, for in the end it is only his choice and not ours that will count. To do this we must give him a knowledge of occupations. We must let him see what is demanded (personal qualities and service) as the price of success in various careers, what are the economic returns, the demands upon his health, the moral risks, the social status guaranteed, and the chance for growth and advancement. This is a problem not merely of getting information for ourselves as teachers, but primarily one of instruction.

Guidance and educational motives. In the midst of such a wide variety of courses and activities, all devoted to the

attainment of a remote aim, and so representing, at best, an indirect approach to the thing sought for, there is nothing so much needed as a real motive that will drive the child to his task. By bringing a real life career into view as the point at which his knowledge and skill are to apply, the child finds a personal reason for the study of facts and for drill in activities which otherwise would remain as plain academic tasks. The occupational objective changes study and drill, and facts and principles into means instead of ends. Further, among the careers reviewed will be found some that will call out the best of a child's abilities. The survey must expect to find guidance machinery and processes devoted to this purpose.[1]

Guidance and employment. A fourth function in a complete guidance program would be that of connecting the child with an occupation when he has finished his work at school. This does not mean merely finding jobs, but finding the right jobs for the right people. The job must be looked upon not only as an occupation, but also as a part of the child's training. The emphasis upon this viewpoint should vary inversely with the amount of schooling a child has completed when he leaves the school. Half-trained children, with abilities and physiques for positions of large responsibility, should be kept out of blind-alley jobs and placed where the work may lead them to better things.

Guidance and continuation training. Where the law provides for continuation or part-time training of young workers, the schools have a large opportunity for guidance service of the very first importance. It is the opportunity to supervise the child in his work as well as in his study. It should result in much salvaging among those who may have broken

[1] This does not mean that a boy of ten years will choose a vocation at that age, but only that he will gain information that will be useful to that end later.

away from school too soon, and provide a strong stimulus for those who were forced to quit school in order to earn a livelihood.

The survey must undertake to find out whether all these functions are being served. The surveys of organization and of the curriculum (Chapters VIII and IX) will show whether the machinery of that type is doing all it can to direct the child wisely through his work. In this chapter we are concerned with the special supplementary guidance work. Are the schools studying the children, teaching them about occupations, developing life-career motives in school work, finding positions for those leaving school, and directing the further training of those at work? If so, how is this work done, and what are the tangible results? If not, then what should be done? These are the points of attack for the survey.

3. Organization for guidance work

Line and staff service in guidance. The first step in the survey will be to look for the machinery to which the guidance function has been assigned. The nature of that machinery will indicate to some extent whether the function as above set forth is the conception with reference to which the schools are operating. If there is a formal organization for the purpose, with adequate records, the study will be simple enough.

There are two aspects to guidance work, as already suggested. One is staff service, the other is line service. Information must be had, and directions and advice must be given. Part of this information comes from the child, and part from people, books, and documents. The directions and advice are given to the child. The scheme of management should be worked out with these facts in mind. Good guidance can be given only when the guide has an intimate

knowledge of the pupil. Accordingly the actual guide or counselor should have a part in the staff service. In a small school system all these functions would be performed by one person, but, as the numbers increase, a larger and larger organization is necessary.

Suggested plan of organization. By way of illustration only, and not as a definite standard, the following plan of organization is suggested. First, there should be a single executive head, responsible for the entire program. Under this head there might well be a single head of all staff service, responsible for getting together from the field, from books, and from children all the information needed. A second person of equal rank should be in direct charge of all line service up to the point where the child leaves school, responsible for the assignment of counselors, the grouping of children, the final arrangement of materials to be used in specific guidance instruction, and the supervision of all advisory service. A third officer of the same rank would have charge of appointment and follow-up work. Under each of these chief subordinates there would be a group of workers, depending in size upon the number of children and schools in the system.

The lines along which specialization would take place in any expansion or extension of this central machinery would depend upon a great many things. If the schools are provided with a research bureau, obviously much if not all of the staff service would be handled by the research staff.[1] The line officers, in a similar way, would be connected up with the administrative, supervisory, and teaching staff. Some would be supervisors of instruction, and at the same time supervisors of guidance courses and guidance instruction. Teachers and principals would do counselling and give guidance instruction. The attendance officer and visit-

[1] See Chapter XVII.

ing teachers would assist in appointment and follow-up work. Precisely what assignments from the regular staff and what special assignments would be made could not easily be laid down in the form of a rule.

Relation to main administrative organization. Figure 11 will clarify these suggestions. Just how this machinery

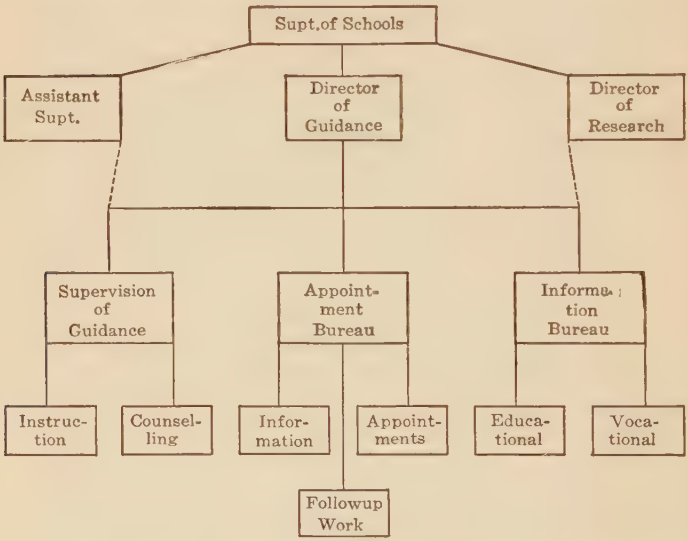

FIG. 11. PLAN OF ORGANIZATION FOR GUIDANCE SERVICE

could be attached to the general administrative organization might vary with the character of the main plan, but in order to show this relationship it is suggested that Figure 11 may be attached to Figure 4 so that the executive head of the guidance department would rank as an assistant superintendent. In a city of 50,000 people, such as that for which Figure 4 was drawn, it is the writer's judgment that this function can properly be assumed by the research depart-

ment. In a larger city the guidance department could be organized either as a part of the research department or as an independent department, the executive head being coördinate in rank with that of assistant superintendent.

Figure 11 is intended to suggest an analysis of functions only. The assignment of workers to these positions is a different question. In a small place, one or two people would do all the work. In a large city further extension and specialization of this scheme would be necessary. High school and elementary school; sex, occupations, and education; groups of occupations; clerical and statistical service; record and filing service; field service; testing service — all suggest lines of cleavage which an extended scheme of organization would recognize.

While the director is chief executive head, intimate coordinations should be effected with all instructional supervision and with the work of the bureau of research. The purpose of guidance is to aid instruction, and the purpose of the bureau of research is to care for staff service. How these coördinations could best be effected would depend upon local conditions. The survey should see that such coordinations exist.

4. Studies of the children

Individual differences. The fact of individual differences, now so well established, makes it impossible for us to reduce guidance to a rule-of-thumb procedure. Each child stands as a distinct problem, both to the school and to himself. What he should try to do in study, and what career he should seek to enter are special problems, the solution of which must be written in terms of the child's own character and capacities, as well as within the limitations of available careers from which choice might be made. To guide, then, we must know each child individually.

Factors in success. What counts toward success? By success, let us have in mind success both in school and in a career. Our conception of guidance makes it a single program. Vocational, moral, social, and educational are but points of emphasis in a single unitary program of guidance covering all the child's interests and activities, and extending from the time he enters school to the time he gets established in a career. It is with reference to all the problems the child is to face (vocational, moral, political, educational, or æsthetic) that we are to examine the scheme of guidance. In all this, we ask, what are the human-nature factors and the factors of training and environment that count for success?

The school cannot determine the factors in nature, nor the social inheritance, nor more than a small part of present environmental forces, yet its success depends upon the way in which it controls that small part. Our first step, then, is to know the nature and the uncontrollable environmental factors with reference to which we are to guide. The part of this we need to know most about is that which counts for or against success in what the child is to try to do. The color of the eyes will likely have little effect one way or the other upon success, but the acuity of vision surely will have. Intelligence a little above the average may have everything to do with success in certain occupations, even though it may seem to have little in some others. A child's natural bent or taste might be set aside in the face of dire necessity, but ultimately and in the large it will surely affect his success.

If we were to list the factors that count and that can be studied we should certainly include general mentality, special abilities, interests, physique, and social and moral capacity and needs. To these we should add such social factors as native language, home conditions, race traditions, home occupation, and social and economic status of family.

Each of these is known to have a bearing upon success, and each is reasonably tangible for study.

Obtaining the data. Our first inquiry, then, is: Have the schools obtained such data as these, and, if so, what use has been made of them? If there is a guidance department in the school system there is where we should go for these facts. If not, then to the research division, or to the offices of superintendent, registrar, and principal. The survey is interested to know whether the schools are provided with these facts, how they are obtained, by whom they are obtained, how they are arranged and filed, who has access to them, who actually makes use of them,[1] whether they are adequate for the purpose, and how they are being brought to bear in actual guidance service. Is this entire scheme of things efficient?

Interpreting the data. It is not feasible to set down here the details of how to bring each of these sets of facts to bear in guidance. Once the guidance director knows the I.Q. of a child, what should he do with that fact? If the boy is the son of a Greek bootblack, what use will guidance have for that fact? If the boy is physically or mentally below par, what of it? This is a detail for a volume on guidance, yet the survey must ascertain what use is made of the information about children, and how it is brought to bear. Has the pupil chosen his courses wisely, is he participating in the social life of the school in accord with his needs, and is he proceeding through school at his own best rate and toward

[1] The teacher needs such facts about a child who is getting behind in his work or for whom some discipline becomes necessary. The supervisor needs them, the attendance officer needs them, the recorder needs them, the principal needs them, the nurse and physical director need them — each for some special purpose. Always the purpose is to rationalize the handling of the child. Accordingly, the bureau in charge of gathering and filing this information must remember that guidance is a very broad function, and that such facts cannot be gathered separately for each person who may need them.

proper objectives? These questions are dealt with in other chapters of this book. Here it is important to point out the relation of guidance to these other problems. Our concern here is with the process by which the pupil has been helped in the solution of these problems for himself. This is the task of counseling.

5. The work of counseling

Directing the work. From Figure 11 it will be seen that our plan of organization calls for counselors. A counselor is one who is responsible for directing the child. For certain individual children the counselor must know the facts above suggested, and must actually discuss with each child the educational, social, moral, avocational, and vocational goals, together with the actual programs of study, work, and play leading to those goals. Guidance begins, and information begins to accumulate about each child the day he enters school, and continues even after his formal schooling ends. Much of this work is done by classroom teachers as instructors or by supervisors, and not by formally appointed counselors.

Actual counseling must be given, however, when the child reaches a point where he is free to make choice of studies. If there are electives in grades seven and eight, then some one must guide the child in his choice. All through the junior high school and beyond he must make similar decisions, and as he nears the end of high school he comes closer and closer to the question of a career. In the bridging of these gaps, and in choosing among possible courses, the child must not be left to himself and to chance. Similarly there are social and moral crises in the lives of many adolescents. To meet these they need advice, and the counselor must be prepared to give it.

Measure of success in counseling. It is easy to judge the

efficiency of guidance machinery as mere organization,[1] and it is easy to judge the worth of the system of records and reports that are essential to guidance service.[2] The question here is, is all this machinery really effective. The survey cannot see the counselor at work. It must judge by results. Our question is, do children continue in school as their general intelligence indicates as possible and desirable? Do they choose or are they in courses properly suited to their intelligence and vocational interests?[3] Are they physically fit for the vocations they are training for? If the number of failures in a class is large the chances are that there is lack of adjustment at such points as these. If large numbers leave school at an early age the chances are that there has been poor guidance. If there are many cases of discipline, if the social life of the school is at a low ebb, and if children seem to be drifting aimlessly into occupations instead of with reference to a recorded plan, it is clear that there is need for more intimate advice on these points.

The purpose here is to suggest points of attack for the survey, and not to offer detailed plans for study. Other chapters have furnished much of the latter.

6. Vocational information

Occupational instruction. In the chapter on curricula attention was called to the problem of instruction in occupations. Little needs to be added here to the suggestions offered there. What is the nature of the courses offered? When are they available? Is the work required of all? How is it related to other courses, and to the general social life and management of the school and to the occupational

[1] See Chapter III, above.

[2] See Chapters VII, VIII, and X, above.

[3] See Proctor, Wm. M.: "Relation of General Intelligence to the Persistence of Educational and Vocational Plans of High School Pupils"; in *Journal of Educational Research*, April, 1923.

life of the community? These are angles from which this aspect of guidance service can be examined with advantage. Field trips where observation of occupations may be made; instruction in the legal, health, and knowledge requirements of occupations; and the social and economic outlook of each must be stressed.

7. Appointment and follow-up work

The choice of a vocation. A child should choose and not merely drift into a vocation. Making a choice is a matter of great importance, and it is assumed here that the school's responsibility does not end with instruction about vocations but must assist the child in making a rational choice for himself. The counselor will have pointed the way and laid down the facts and principles that are to guide. The appointment division will move with reference to this program, keeping in mind that the child is soon to stand on his own feet. The appointment office must not merely get jobs for students, but it must get right jobs, and the appointee must know what he is going into and just what are his own weak and strong points for such a position.

Appointment service. Appointment service is therefore not merely clerical work. Its files of information about the applicant and about the position must be complete, and must be carefully checked against the guidance program that has previously been outlined. The survey will need to examine these files of information, learn just the program by which an appointment is made, and then check over enough individual cases to see how carefully the facts are brought into play.

Follow-up work. After appointment has been made the office must then begin a record of the service, and keep that record up to date. It should show what the job is, the conditions of service, the pay, the chance of promotion, and

exactly what success is attained. If successful or unsuccessful, why? Provision for advice about continuation study must also be made, and the survey should find whether such service is rendered.

QUESTIONS FOR CLASS DISCUSSION

1. What is meant by educational, vocational, social, and moral guidance? Why is guidance more necessary now than it was fifty years ago?
2. What have elective courses, required courses, and prerequisite courses to do with problems of guidance in a high school? Has supervised study a bearing on the guidance function?
3. Is the parent of to-day more or less competent to furnish school guidance for the child than was true a century ago? What has supervised play to do with guidance work? What has student government to do with guidance work?
4. At what age should the schools begin a definite guidance program? At what age should definite instruction on occupations be begun?
5. Discuss the *San Francisco Survey Report's* recommendations (page 526) affecting the relation of guidance to vocational training. Compare this with the discussion in the *Philadelphia Survey Report* (vol. III).
6. Could a course in guidance be offered, and if so what would be the nature of the course? What is meant by counseling?
7. What value would a careful follow-up system of guidance have? What is a "blind alley" job?
8. In counseling, what significance would you attach to: a weak heart, permanent lameness, crossed eyes, poor vision, left handedness, low mentality, bashfulness, high inventive ability, love for nature, marked skill with tools, high artistic ability, tendency to be untruthful, tendency to steal, disposition to quarrel, moroseness? Discuss various combinations of these traits in their significance for the counselor.
9. In what sense do courses of study and school organization furnish guidance service? Why have these become inadequate in late years?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Sketch briefly the history of the guidance movement.
2. Work out a plan for guidance service in a city of 10,000 population, and another for a city of 200,000. Show how they are alike in the things they actually do for a given child, and how they are different in their organization. Show for each system just how the line and the

staff service is rendered separately. Does the specialization necessary in a large system weaken or strengthen the service to the pupil?

3. Draw up a form to use in gathering the information necessary for the proper guidance of a child. Would this differ from the cumulative record card suggested in Chapter VII?
4. In a city of 50,000 population, what guidance records would you keep over and above the records commonly kept in the principal's office? Make a list and describe.
5. Explain the guidance value of the following facts: Sex, I.Q., mental age, chronological age, height and weight, health, quality of vision, native language, race, father's occupation, child's occupational interests, special abilities of child, home conditions, record of discipline, morals, excellence of teeth, scholarship record, leadership in play and group work. What other facts about the child would you use?
6. State what occupational and what personal facts you would want at hand if you were counseling a 17-year-old boy about a job as bookkeeper in a hardware store.
7. What ideas are contributed by survey reports on:
   a. Organization for guidance work?
   b. How guidance work should be carried on?

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PART III

EFFICIENCY OF INSTRUCTION AND SUPERVISION

CHAPTER XIV

THE MEASUREMENT OF INSTRUCTION

1. The problem of Part III

The main outline of the book. In Part I of this book we dealt with the larger structural aspects of the school system and with the larger processes of school administration. In Part II we were concerned with the machinery and processes essential to the internal administration and management of schools and classes. In Part III we shall turn to an examination of what has been the effect of instruction and supervision on the output of the schools. Thus our movement has been from the coarser institutional problems in the direction of the child, and this is our final step. Has our educational machinery been effective in turning out a satisfactory product is the question we shall now consider.

In this Part we shall deal with four main problems.

1. What measure of success has been attained in instruction?
2. What measure of success has been attained in supervision?
3. What contribution is being made through health supervision?
4. What are the functions of research in a city school system?

Aside from the last chapter, we are dealing here primarily with the child, and with those parts of the school machinery that come into intimate touch with the child's program of learning. What does he now know as a result of his study, and what is his physical condition?

Reason for special study of supervision and health. It may be said that, in view of the treatment up to this point, there is no real need for a special study of the problems of supervision of instruction and of health. Both of these have

been touched upon in other chapters. Organization, buildings, staff, records and reports, grading and classification of pupils, curricula, daily programs, and guidance all touch these problems of instruction and health supervision.

The main reason for making a special study of these matters, though, will be obvious to those who are directing the work of these departments. It will be realized that these two functions are not as yet very clearly worked out in school practice. Well-established standards of organization, procedure, or accomplishment within these two fields have not as yet been definitely formulated. Accordingly it has seemed worth while to devote two brief chapters to these subjects, in order partly to emphasize their importance, and partly to bring together what we have in the way of a technique for studying their efficiency.

The purpose in measuring the results of instruction. It is not merely a measure of results as ends, however, that we want. It is from a study of such measures that we are able to draw important inferences about other things. If results are good or poor, then from such measures we should be able to obtain some clue as to the cause. The cause may lie with the child, or it may lie with the school, and it may or may not be removable. It does little good to say, as a result of measures, that instruction is exactly so poor unless we can go further and explain whether there is reason to expect better results, and if we can, then to point out the reason why it is poor and show what needs to be done to bring it up to standard. It does little good to bring to light given amounts of inequality in accomplishment in different schools and classes, unless we can trace the cause for the inequality back to the nature of the child or to the plan of supervision and instruction. It is of little use to count the children with weak eyes, poor hearing, diseased tonsils, and curved spines, unless we can show whether or not the school can make ad-

justments in the child's work and in his management that will be of value as a remedial procedure.

A measurement program in a survey is thus not only an end, in the sense that it tells us what product is being turned out, but it is also a means by which special light is thrown upon the efficiency of the curriculum, management, teaching, supervision, organization, buildings and equipment, and the financial provisions. In fact it is doubtful if tests are of any great value in a survey when used as an end only. Diagnosis is only half-made when we have named the disease and given a measure of pulse and temperature. We need to go beyond mere symptoms and show the causes, and then to prescribe with reference to the causes as well as with reference to the disease.

2. The problem of this chapter

Types of measurement in a survey. Work is scientific only to the extent that it is based upon facts and truths or principles. A fact implies measurement or limitation; otherwise it is not a fact. If a ceiling has a yellow tint, then that means that some amount of the mixture of colors used was yellow. A truth or a principle is universal in its nature and has universal application. The essence of truth is embodied in every fact, the fact being a special illustration of the truth in a certain instance or situation. Facts are found in isolation, but truths or principles have to be built up. The field of education has as yet built up only a few general truths, and so in large part must work with facts. When our facts have been examined and classified and reclassified enough we shall have more general truths, principles, or laws with which to work.

A survey must therefore gather facts about the schools and show what those facts mean. This it will do by selecting certain facts only for study, by counting and classifying

those facts, and where possible, by interpreting them in the light of general principles or laws. While each fact implies a set of limitations, yet we can get the meaning of a given fact only by referring it to a general principle or by setting it alongside of other facts. This latter we may do by a direct comparison or by referring all the facts to a chosen unit of measure. Of such units of measure, however, we have so far developed only a few.

Description and enumeration in measurement work. As a consequence of our lack of such units, it is possible in some of the work of a survey to do little more than describe — that is, to tell a large number of facts about some one thing. The bad location of a school building forms a good illustration, there being no other means of saying how bad the situation is, or of explaining the consequences of the use of the present site. At other points the survey can classify its facts and count them. A certain number of children are in attendance, a certain number are suffering from adenoids, a certain amount of money was spent. Such enumerations mean little, however, until they are referred to some standard of measure. Did they spend enough money, or too much? Was attendance low, or high? Are cases of adenoids relatively numerous, or not? Obviously we need to have some measure that enables us to interpret the meaning of the facts.

In some cases we have no norm of any sort and must be content, therefore, with a mere enumeration and a wise guess at the meaning of the count. For instance, suppose we count the number of times per week each seat in a classroom is used and, by computations, are able to state that the room is used up to sixty-three per cent of its total capacity. Is sixty-three per cent high or low? At present we do not know, because we have no norms. Here we have measured, but cannot say in any detail what the measure means.

Measuring by comparison. In many cases we can go further because like enumerations have been made elsewhere, and we are able to set our facts over against like facts for other systems. In such cases, however, we have to apply a common unit of measure before comparison can be made. In explaining cost of schools it means nothing to say that City A spent a million dollars, and City B a million and a half. City A may have bought more education than City B. What is done in all such cases is to select and apply a common unit of measure before comparison is made.

A unit is a good one when it measures what we want measured, and a bad one if it measures something else. The "pupil" is a good unit of measure for costs (within limitations we need not consider here), because costs tend to increase with any increase in number of children, but cost per "building" would be a bad unit because buildings are of different sizes and the ratio of cost to number of buildings is far from constant.

Units of measure. For more than a decade we have been trying to develop units of measure for almost every type of facts with which education has to deal. As a result we have units in nearly all stages of development from those whose full meaning is not yet determined to those whose full meaning is understood and with reference to which nation-wide norms have been established. Is the cubic foot a good unit for measuring building cost? What does it measure? Obviously it measures the usable space provided, but this within serious limitations, for we ask at once, use for what? Is it for corridors, toilets, classrooms, playrooms, stages, closets, offices, — and always in the same proportion? Obviously no. Then such a cost unit refers to a very mixed sort of purchase, and is not satisfactory except for very coarse usage. A unit of achievement in spelling as determined by the *Gettysburg Spelling Scale* is a fairly tangible amount of something

learned, for the reason that it has reference to exactly the same amount of exactly the same thing wherever the unit is used.

It is necessary to use all this wide variety of means for defining the facts about a school system. Up to this point illustrations of many kinds of units and of many ways of getting quantitative information about the schools have been presented. In this chapter we turn to the problem of measuring the success of instruction. To accomplish this we have available many devices in the form of carefully standardized tests and scales, each designed for the purpose of measuring a certain limited thing. How much has the child learned in a given subject?

3. Planning a testing program

First step is a definite purpose. In preparing a testing program for a survey, the first point to decide is what can be accomplished by such a study. There are many possible reasons for making measurements of pupil achievement, and it will be our purpose to list some of the more important reasons here and to try to make clear how to determine what of these apply in a general survey.

First, we wish to know what has been accomplished in the various studies. This will give us an important measure of the efficiency of the school system and will be needed in any general survey. Other things being equal, if results in a school system are not up to standard, then it is not efficient, regardless of what the cause may be. It must be kept in mind that we usually cannot take for granted that "other things are equal," and that this must be determined. Length of term, length of day, quality of teaching staff, teaching conditions, size of classes, content and organization of curricula, time allotment, age, mentality, and health of children — all these must be equal to the average for the

country as a whole if we are to expect standard results. If they are not equal, our next step is to determine whether or not the school is responsible.

Aside from this general index of efficiency, test results may be used to throw light upon almost every separate part of the school machinery and procedure. If results are uniformly poor throughout the system it may be due to a too difficult curriculum, to which the administration demands too strict an adherence. It may be due to a general low level of intelligence among the children; to a poor system of grading and promotion; or to poor buildings and teaching facilities.

If results are good in some studies and not in others, as is often the case, then we may suspect the cause to be wrong time-allotment; lack of supervisory coördination of work; wrong organization and emphasis in selection of curriculum materials; or, if teachers are assigned to subjects instead of to grades, it may be due to poor teaching in some subjects and good teaching in others. If results are good in some buildings and not in others it may be due to difference in mentality between children of different neighborhoods; to differences in teaching efficiency; to differences in administration and supervision; or to differences in building, equipment, and teaching conditions. If results are extremely varied in some places and the reverse in others, or if wide variation is the rule in most classes, then we should expect to find the explanation in a wrong system of grading, promotion, and classification. Certainly it would show lack of supervision; lack of proper use of special, ungraded, and opportunity rooms; and, almost surely, poor general administration.

Thus, our purpose in using tests in a survey being determined by what tests can be made to reveal, we should select from all these possible services the particular service which we think will be most needed in the system being surveyed.

Second step to determine extent of program. If the survey is to be made by the superintendent and his staff the chances are that they have at hand information enough about the schools to furnish a basis for saying how extensive the testing program should be. If it is a survey from the outside, then the authorities asking for the survey may specify that a general testing program be used. If not used, then the survey staff should not outline such a program until certain general examination of the schools has been made. For example, the printed courses of study, the official time schedules, samples of the class marks of teachers, the plan of supervision, the promotional scheme and promotional statistics by subjects, visits to a number of classrooms to see work in process, size of classes, number of ungraded rooms — all these can be superficially examined in a short time for clues to particular points of strength or weakness in the system.

If no marked strength or weakness is revealed by such a casual study, then one of two things can be decided upon. Either no test program is needed, or a program the purpose of which is general rather than particular should be planned. In any case we may be fairly certain that there is no serious demand for a highly specialized program. If, on the other hand, the printed courses of study and the time schedules lay great emphasis upon some studies and not upon others; and if class marks show large percentages of failures in one or two subjects and few failures in others, if there is much retardation and little in the way of special adjustment rooms, we should then plan an intensive test program for the questionable subjects and only sample studies for the others.

If our purpose is general rather than special, then our tests must cover a number of subjects, and should include liberal samples of all schools, grades, and types of classes. Our

specific question is: In the light of the aims set forth in the courses of study, is satisfactory progress being made in the studies in which these aims are embodied? If the results are decidedly better or poorer than the established norms for the tests, then the survey must try to find and explain the causes and say what should be done.

All this must be decided in full detail. To do this the time and money available for the work have to be considered. How many actual tests can be handled, and at what cost? This settled, the buildings will then be chosen, being careful to select typical buildings as to social and racial character of population, size, grades and types of work covered, and plans of organization. Next, having in mind an approximate total number of cases, decision will be made as to what grades will be tested and the number of children to be included in each. This information for each test to be given might well be brought together in some such form as is suggested by Table XXVI. (See page 348.)

Third step the selection of tests. Once the purposes and extent of a testing program are determined it should not be difficult to decide what tests will be suitable. Several publishers and a number of distributing agencies[1] are prepared to offer very excellent assistance here. Furthermore, tests are numerous for most of the school studies, and the literature on tests is so abundant that it is not difficult for a well-trained school man to obtain trustworthy information to guide him in the selection of tests.

A few precautions should be observed carefully:

[1] The World Book Company, Yonkers, New York, Chicago, Atlanta, and San Francisco; The Public School Publishing Company, Bloomington, Indiana; Bureau of Publications, Teachers College, Columbia University, New York; University of Chicago Press, Chicago, Illinois; and the Bureaus of Research in University of Illinois, Urbana, Illinois, and in Indiana University, Bloomington, Indiana, are among the more prominent large dealers in tests.

TABLE XXVI. SCHOOLS, GRADES, AND NUMBERS OF PUPILS SELECTED FOR TEST PROGRAMS

(Group intelligence test)

SCHOOL	TYPE OF COMMUNITY	PRESENT ENROLLMENT	GRADES TAUGHT	ORGANIZATION	GRADES AND NUMBERS OF PUPILS TO BE TESTED											
					I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Total
Palm Avenue.	Suburban residential	350	1– 8	Regular	25	47	30	28	52	59	50	22					313
Garfield.....	Industrial	1260	1– 8	{Reg. 1–4 {Dept. 5–8	190	220	186	195	118	185	92	74					1260
Grant.....	Italian labor	300	1– 4	Regular	58	74	33	37	29								231
Central High.	All types	400	9–12	Dept.									140	112	86	62	400
San Pablo.... Junior High	Middle-class residential	330	7– 9	Dept.							120	108	102				330
Total.....		2640			273	341	249	260	199	244	262	204	242	112	86	62	2534

1. Make sure of the validity of the test. If its validity has not been determined it ordinarily should not be used.
2. Make sure that it is reliable in the sense that results of one time are the same as they would be at another time.
3. Choose a test for which directions are full and specific, so that if necessary it can be administered by different persons.
4. Choose a test that is simple to administer and simple to score, so that different scorers may be used without affecting the results.
5. The test should have established norms that are based upon large numbers of cases, and for the grades in which it is to be used.
6. It is desirable to have both age and grade norms, and mental as well as chronological age norms, if possible.

It would not be possible to offer a list of tests here without lengthy explanations and, within a short time, the best possible list would need revision because of the work that is at present under way.[1]

4. Administering the test program

Instructing the staff. In administering a test program care should be taken to make sure that the tests will be given under suitable circumstances. Those who are to give the tests should be brought together and instructed in the giving of the tests. If any of the tests are new it will be wise, as a first step, for each member of the survey group to take the tests exactly as the children are to take them and then, together, to go over the details of all the rules for giving them.

Instructions for giving the tests fully mastered, the next step will be to make the assignments to buildings, grades, and rooms for each member, and for each of the tests, with the exact time of giving noted. These details may be taken

[1] A useful description and guide to the selection and use of tests is Hines, H. C.: *Guide to Educational Measurements.* Boston, Houghton Mifflin Company, 1923. See also references at close of chapter.

from a program which the director will previously have worked out. So far as it is convenient to do so, it will be found better to start with one test, and use it through all the grades and buildings where it is to be given, before another test is begun.

Generally speaking, unless the children are accustomed to taking such tests, it is better first to give a simple test. For this purpose a spelling test is good to start with. After the program is under way there is little choice, so far as the children are concerned; the convenience of the regular school program and of the survey staff may then be the guide as to the order of giving the tests.

5. Preparing the test results

Scoring the tests. When the tests have been given, the papers should then be brought together and scored, and the results arranged in accordance with the purpose or purposes they are to serve. Assignments to work in scoring can be made in some measure to suit the abilities and interests of those who are to score the papers, though it is better to work by subjects, so that manipulation and study of the data can be started as early as may be.

The directions for scoring the tests are always specific, if the test is well constructed, and no variation should be made from the rules. If no place on the test paper has been provided for placing the score, then a place should be decided upon and used by all, so that the papers and scores may be consulted rapidly if they need to be referred to at any time.

Assembling the scores. When the scoring for a given test has been completed, the papers may be arranged so that the pile of papers will form a descending series of scores. The scores may then be taken off and assembled in tabular form. Just what form or forms will depend upon the uses that are to be made of the results. In a general survey the

chances are that studies should be made by grades and by buildings. Beyond this sample studies may need to be made for special purposes, as, for instance, a comparison of classes taught departmentally with those under the usual class plan, or the success of over-age as compared with that of under-age groups, or double session with single session groups.

For any given test the scores from one building might first be assembled, as in Table XXVII. This shows, for a given

TABLE XXVII. ILLUSTRATING SIMPLE TABULATION OF SCORES OF INDIVIDUAL PUPILS, BY CLASSES

Spelling — Longfellow School

Score	Number of Pupils by Grades and Classes												
	I					II	III			IV	V	VI	VII	VIII
	1	2	3	4	Tot.		1	2	Tot.					
100	1		2	4	7	9	2		2					
90	3	7	5	9	24	12	9		9					
80	12	10	8	10	40	7	14	8	22					
70	7	9	9	8	33	2	6	12	18					
60	2	5	6		13		2	7	9					
50			4		4	1		3	3					
40			1		1		2		2					
30	1				1			1	1					
20								2	2					
10							1		1					
0							1		1					
Total	26	31	35	31	123	31	37	33	70					
Median	72	72	68	78	72	85	75	63	69					
Norm	70	70	70	70	70	70	70	70	70					

school, the number of pupils in each class tested and receiving any given score. From this table we note that in the Longfellow School there were four first-grade, one second-

grade, two third-grade, and one fourth-grade classes tested in spelling. When such sheets have been prepared for all subjects and for each of the buildings, then the study of the data may begin.

6. *Interpreting the results of tests*

The problem. Let us assume, by way of illustration, that we have given both mental and achievement tests to a relatively large number of children, from all types of schools and from all grades. From a study of such numbers we shall then be able to make general as well as specific statements about the efficiency of instruction in the schools. Let us also assume that our population is quite cosmopolitan from the standpoint of race and social inheritance, and that schools have been so located that a given school population is dominantly industrial, or foreign, or middle class, or select suburban, or a mixture of all these. Let us assume further that our casual review of such matters as have been suggested above has led us to believe that some schools are much better managed and taught than are others, and that there are other reasons why we should expect wide differences in test-results between buildings.

Our problem, then, will be to locate the inefficiency if it exists, or the superior work if that exists, and try to find out the causes in both cases with the idea that it may be possible to say whether the cause when harmful can be replaced by causes that are helpful, and if so, how. If causes are found and are not removable they should be explained, so that what appears as inefficiency, but in reality is not, may be understood, in order that the suspicion that has oppressed such cases may be replaced by confidence.

Standards of measure. To solve this problem we shall have good use for dependable standards of measure and for comparisons that will bring the full meaning of every part of

the problem into clear perspective. Each test will furnish a norm of its own. Usually that norm will be a grade norm only, and be made up from a very large number of cases from a large number of school systems. In addition to this we should measure each school against the city as a whole, grade by grade, and each class and each child against the standing of its own building.

There are two ways in which we should study our measures. First, as to averages or central tendencies of groups, and second, as to the variation of scores within each group. Then, too, we should measure each child and each group in achievement over against the score attained in the mental test, so that a child's achievement in a study may be expressed in terms of his native ability to achieve.

It is only by the use of such measures and comparisons that we are able to bring the real educational problem to light, and to outline a plan for its practical solution. That there are unsolved statistical problems involved should make us cautious but not stop our study of these problems.

What to study first. The studies to be made in a general survey would be:

1. What is the present efficiency of the school system, as judged by the norms for the country at large?
2. What are the present mental abilities of the children?
3. What is the efficiency of the system in achievement, when results are interpreted in the light of the mental capacities of the children?
4. Three similar studies, by school grades.
5. Three similar studies, by schools.

Other studies might be made, but these at least would be necessary in order to get at the essential aspects of the situation.

What study to make first is of no great importance. Logically we might begin with the records of mental tests, since

these furnish us with a measure of the capacity that is available to be educated. From such a study we are able to establish an expectancy for each child or group in each test. A mentally normal child should measure up to the test norm. A child above normal in mentality should go above the test norm, and a child below normal mentally should fall below the test norm. The study could be made by buildings, by grades, and for the city as a whole, or if preferred by only one of these arrangements of data, and then be followed with one after another of the achievement tests in the same way, and finally with a study of achievement-results in the light of the results of the mental tests.

7. *Interpreting mental-test results*

Arranging the scores. Let us assume that we have given the National Intelligence Tests, Scale A, to children in five schools. Let us have the scores arranged, first by classes, as in Table XXVII, only using the appropriate scale on the left. These tables could then be consolidated by grades for each building, as illustrated in Table XXVIII. Once we have scores arranged by grades for each building it is then a

TABLE XXVIII. MENTAL-TEST SCORES BY GRADES

GRADE	SCORE																			TOTAL	MEDIAN
	45	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140		
3	10	18	26	50	41	30	23	18	4	7	1									228	69
4		4	9	22	17	28	31	27	16	9	11	5	2							181	78
5		1		3	11	9	24	29	37	16	10	5	7	4	6	1				163	88
6					3	7	13	18	17	28	36	20	11	8	12	5	3			181	95
7					1		1	13	23	20	31	22	17	10	11	2				151	99
8							2	5	18	16	24	31	24	16	4	8	5	2	1	156	104
Total...	10	23	35	75	73	74	94	110	115	96	113	83	61	38	33	16	8	2	1	1060	89

simple matter to consolidate the building scores into scores for the entire city, for which we would then compute our medians and quartiles. Such a table seems so simple to arrange that no illustration of it will be offered here.

When we have reached this point we are then ready to begin a study of our findings. For this study we shall need to look through the figures at each separate stage.

Study of class and grade groups by schools. A study of the classes separately by grades (as in Table XXVII) for each building would bring to light any extreme cases. One can easily see whether a class is widely varied, or whether scores are very high or very low. If scores run very low and also very high, and are well distributed between extremes, we have clear evidence that pupils are not classified in terms of mental ability. If the scores are close together then the opposite is true. It would be a simple matter to distribute, or at least to count, the classes that are widely varied, those whose scores are close together, and those which are not extreme either way. If in a building having thirty-five classes we find twenty that show wide variation, five that are compact, and ten that are not extreme, then we could say that the principal of that building would do well to study his classification of children.

Again we should want to examine the figures after the classes had been consolidated by grades for each building, as in Table XXVIII. Here we should look again for variability within the different grades, and we should look at the median score for each grade in the building. By comparing these with the norms for the grade it would be easy to detect any group that departed widely from the expected standard. If we found little variation in scores within a grade we should conclude that that grade organization was sound, while wide variation would lead to the opposite conclusion.

Comparative study of schools, by grades. Our next step would be to bring together the essential characteristics of the scores in each of the grades for each of the buildings. Table XXIX suggests a means for doing this. The lower quartile

TABLE XXIX. MEDIAN, LOWER QUARTILE, AND UPPER QUARTILE SCORES BY BUILDINGS

(Hypothetical cases)

SCHOOL	UPPER HALF OF GRADE																		Total no. of children
	III			IV			V			VI			VII			VIII			
	1st Q.	M.	2d Q.	1st Q.	M.	2d Q.	1st Q.	M.	2d Q.	1st Q.	M.	2d Q.	1st Q.	M.	2d Q.	1st Q.	M.	2d Q.	
Garfield	32	48	59	50	72	82													1260
Hawthorn	41	48	57	65	74	80	85	93	97	89	95	105	98	99	108	97	104	113	1060
Palm Avenue	46	50	55	68	76	80	73	76	80	115	118	124	121	130	134	138	145	152	313
San Pablo Jr. High													111	128	136	129	140	158	330
All schools	40	49	60	60	69	74	79	92	96	98	104	110	118	124	130	133	138	143	2134
Standard		49			69			89			105			124			133		

score, being halfway between the lowest extreme and the median, characterizes the lower half of the distribution. The upper quartile score does the same for the upper half, and the median score the same for the middle half of the scores. With the test norms[1] at the bottom of the table it is easy to check each grade, either as a whole as summed up in the next to the bottom line of the table, or by buildings as shown in the vertical column, and to see at a glance any grade for the city as a whole, or any grade in any building, that stands above, at, or below the expected norm. Also,

[1] Norms taken from *National Intelligence Tests, Supplement No. 2 to Manual of Directions.* Yonkers, World Book Company, 1923.

from the quartiles, we can readily see the important characteristics of the distributions of scores in each of these groups.

For purposes of illustration let us assume that Table XXIX gives us such a set of facts for four schools. (In reality we should want the mental test to cover the earlier grades and also the high school.) From this array we can see that, on the average (median scores), the three schools are about equal in grade three and not very unequal in grade four. For grades five and six the two schools represented are well apart, and for grades seven and eight the three schools are quite unlike. When all the scores are combined by grades (next to bottom line) we have a figure which, in one sense, has very little meaning, since it covers up such wide variations, but it furnishes us with a single figure for the city as a whole.

By checking the median scores for the schools separately, or in combination with the grade norms (bottom line), we can see just what kind of school population we are dealing with. From this comparison it is clear that some of our schools are very low and others high, and that we should not expect all the children to come up to standard in the achievement tests. Further, we know that we have here facts which suggest the need for most careful work in management and teaching.

Certain other information comes to light when we examine the quartile scores. Here we find numerous cases of very wide differences between schools. In some cases we find the upper and lower quartile scores about equally distant from the median score, and in other cases it is clear that the distributions are badly skewed. In some cases the quartiles are close together, and in other cases they are far apart. Obviously if mental ability is a useful basis for classifying and grading children, then we have here some cases of very poor

class and grade organization and, on the other hand, some cases of very homogeneous groupings.

Checking the findings with other facts. In all these studies we should look for explanations of any scores that are very far from the norm. If the scores are uniformly low, what native, social, racial, and physical characteristics has the school to deal with? Also, when we find these striking cases we are even more concerned to know what the school has done to meet the situation. Is the plan of organization the best? Are the pupils classified as they should be? Are there special, ungraded, and opportunity rooms? Is there a good staff? Is the curriculum designed with proper regard for the probable future of the children? Is the supervision what it should be? Is there chance for social development? All these inquiries are the real tests of the efficiency of the schools. These facts about mental ability should have been known by the school authorities, and steps should have been taken to make the needed adjustments of the curriculum and school machinery. Modern school organization is able to make these adjustments with fair precision, and this is an important test to apply.[1]

8. Interpreting achievement-test results

Purposes in giving such tests. With our mental test results fully explained and with our achievement scores before us, we turn next to see what results are being obtained in the various studies. Here we are interested, not in amounts of ability, but in the results with which abilities have been applied in the mastery of school subjects.

Our purpose in giving these tests in a survey is in general

[1] The I.Q. is likely of value in refining adjustments in individual cases. A child mentally ten years old might be six or fifteen years old chronologically. The I.Q. in such cases might warrant distinctions in classification, but a survey would hardly go into such detail, though the school principal obviously should.

quite similar to that in giving mental tests. We want to know the results of tests, judged by established norms. We want to study individual classes, and we want to study groups of classes by grades. This we want to do for individual schools separately, and then for all schools in combination. Our object is to see whether, on the average, the schools all together, the schools separately, the grades for the entire system, the grades by buildings, and the individual classes come up to the established standards. Further, we are concerned to know whether pupils individually vary little or much from the averages of their respective groups.

Our next objective is to find the explanations of the results. If excellent or poor on the average we wish to know why. If good in one school and poor in another, or if good in one study and poor in another, we must find the explanation. For this we turn to examine our social factors, the plans of organization and classification, the curricula, the staff, the building and teaching facilities and, finally, to a study of the children themselves. If excellent or poor results are obtained in the sense that we get often, or everywhere, wide variations in results, we must also seek for the explanation. That is, here our tests are to be used as means instead of ends.

Norms or standard units of measure. In achievement tests we have several different units of measure. There is the grade norm, or the median result obtained by children of a given grade. All achievement tests are standardized in this way. Second, there is the age norm – that is, a score representing the median achievement of pupils of a given age. This form of standard is decidedly superior. Children of a given age have lived equally long regardless of where they are or of what they have done, but children of the same grade are not necessarily alike in length of time they have spent in school, or in work covered, or in anything else that

is very fundamental. That is, age has one definite meaning, but grade has not. When we think of compulsory school attendance and of the forces that tend to put an end to a child's schooling, we realize that age is a far more important factor in the situation than is grade. A child more often quits at age fourteen or sixteen, as allowed by law, than he does at a given school grade. A third means of measuring achievement is by the Educational Quotient (E.Q.) — that is, educational age divided by chronological age. The point of this unit is that it shows what a child has done as compared with what he should do at his age. If his educational age (E.A.) is ten years, and his chronological age (C.A.) is ten years, then his educational quotient (E.Q.) will be 100, or normal. As most tests are so far standardized only with reference to grades, the choice of units is as yet somewhat limited.

Arranging and interpreting the findings. The tabulations needed will be virtually the same in form as those suggested for displaying the results of mental tests. We should first assemble scores by classes, then assemble the class scores by grades for each building, and then assemble the scores by grades for the separate schools to get the scores for the city as a whole.

In interpreting our scores we must keep in mind that we are dealing not with one but with many subjects, and that unless we have a means of combining the scores for different subjects we will necessarily have to study all the data before we can reach satisfactory conclusions. We might have a good average in one subject and a very poor average in another. A test such as the Stanford Achievement Test[1] is especially useful in affording a simple method of arriving at a combined score for the several subjects.

[1] Prepared by Kelley, Ruch, and Terman. World Book Company, Yonkers, New York.

Let us assume that we find a class in grade three with an average C.A. of eight years and three months, and with an E.A. of eight years and six months. This would give us an E.Q. of 103. This showing we should regard as highly satisfactory providing the average had not been made up from widely varied age figures for individual pupils, and, further, providing the pupils' combined E.Q.'s were not made up from widely varying subject quotients (S.Q.'s). For example, by the Stanford Achievement Test a child's E.Q. might be made up of very low scores in two or three subjects, and very high scores in others. If this were generally true, then it would argue strongly that some subjects are being underemphasized and others overemphasized.

This line of study would be the same whether we are dealing with class or with grade groups. Everywhere we should look to the averages as compared with the norms, and then see what variations are covered up by those averages.

9. Mental and achievement scores compared

Achievement quotients. A high E.Q. (above 100) means that, in comparison with average children, excellent work is being done. Low E.Q.'s mean the opposite. If poor results are quite common throughout the system, then we are concerned to know whether it is due to wrong management, or to poor teaching, or to low native abilities of the children. If low results are wholly due to low mental ability, then our inquiry ends.

It is not enough to know what a child or a class or a school has in the way of arithmetical knowledge and skill. The school is not efficient unless this achievement is all it is possible for it to be. The possibilities depend in part upon native ability, and in part upon the instruction. If instruction is efficiently directed, then the full native ability will be brought to bear upon school lessons in the most effective

way possible. It is not enough to know that a school did well. We must know whether it did what its native ability could do if properly applied. Only then can we say the school is or is not efficient.

As suggested above, then, our final step is to check accomplishment in these tests against native ability. That is, we must compare measures of achievement with measures of mental capacity. The former we may express as E.A. if age norms are available. The latter we may express as Mental Age (M.A.), or we may express the former as E.Q., for example, $\frac{\text{E.A.}}{\text{C.A.}}$, and the latter as I.Q., for example, $\frac{\text{M.A.}}{\text{C.A.}}$. A child with a mental age of ten years should have an educational — for example, an arithmetical or spelling or other subject — age of ten years. If his E.A. is below his C.A., the chances are that he is either mentally above average or that he is being extremely well instructed, and we need to ascertain which.

In order to ascertain whether a child is working up to his limit we need a means of making this comparison. It has been suggested that we divide E.Q. by I.Q.[1] If the result is 1 or over, then the measure shows that the school is doing good or superior work. If it is below 1, then the children are wasting time and energy, or at least they are not accomplishing satisfactory results in their studies. Whether this is more than a very rough procedure, because of the probability of error in both the quotients used in the final ratio, is a question.[2] Certainly it is easier to deal with one figure

[1] See Franzen, Raymond: *The Accomplishment Ratio.* New York, Teachers College, Columbia University, 1922. Also, McCall, William A.: *How to Measure in Education.* New York, The Macmillan Company, 1922.

[2] It is doubtless true that our mental-test results include a measure of the things that are included in achievement-test results; also that they include something over and above this. When we get a ratio of achievement age to mental age we do so on the assumption that mental age is an index to

than with two if we are careful about our interpretation.

Direct comparison by ages or by quotients. It is not difficult to prepare tables, however, from which one can see clearly whether children are working up to capacity. We can do this by means of such arrays as Table XXX. One could study individual classes or grades or individual children as needed. If desired, quotients could be used as in our illustration, or ages as preferred. From this illustration we have one class with an average I.Q. of 100, and making subject quotients in the main below 100 and averaging 95. Another with average I.Q. of 80, and an E.Q. of but 65. Such wide differences as the latter are significant — even though these are to represent averages — and leave the schools something to explain.

10. Special measurement problems

Occasionally there are special problems that are worth investigating in a survey. Not infrequently we accept what appears ready at hand as an explanation of poor school

mentality, and that the amount of mentality determines the amount of achievement that is possible in any given case. It is doubtless true that amount of mentality determines amount of possible achievement, but, that our *measure of mentality* is a *true measure* of the thing that determines amount of achievement — for example, our measure of the thing we call achievement — would not follow unless our measures are independent and exclusive in their uses. If our mental test cannot exclude the results or influence of achievement, and, vice versa, if our achievement results cannot exclude partial measures of native intelligence, it may be a question as to whether the statistical procedure leading to an achievement quotient $\left(\frac{\text{achievement age}}{\text{mental age}} = \text{achievement quotient}\right)$ is very trustworthy. In a sense it would be dividing one number by itself plus some amount of something else, in both of which there is large probable error.

The purpose here is not to insist upon the technique now available for expressing these various relationships, but rather to show that our survey must not interpret an achievement score of 80 in one school to have the same meaning as a like score in another school when there is a wide difference in mental ages.

TABLE XXX. A COMPARISON OF MENTAL ABILITY WITH ACHIEVEMENT IN SCHOOL SUBJECTS, BY CLASS AVERAGES

CLASS	I.Q.	READING Q.	ARITHMETIC Q.	SCIENCE Q.	HISTORY AND LITERATURE Q.	LANGUAGE USAGE Q.	SPELLING Q.	EDUCATIONAL Q.
1	100	99	90	102	96	87	94	95
2	91	80	73	90	76	79	82	80
3	120	130	111	102	98	99	94	106
4	80	78	53	60	70	65	63	65

work, and go along in the belief that we are not responsible and are helpless to remedy the weakness. A high school receiving numbers of students from outside schools may attribute poor general averages to poorly equipped pupils from outside districts. Such a problem is not difficult to investigate, and involves only a little extra work. The test blanks can be labeled by the pupil, and these blanks drawn out and treated separately.

In like manner children who have had some special treatment by virtue of special methods, organization, or curricula can be handled separately, and the results compared with those of other schools or groups. There are times when evidence of this sort is of the first importance, and the desirability of such studies should be explored.

QUESTIONS FOR CLASS DISCUSSION

1. Define: *educational test; mental test; score; E.A.; E.Q.; I.Q.; A.Q.; C.A.; M.A.; unit of measure; and scoring a test,* as these terms are used in this chapter.

2. By whom were test papers scored in the surveys of the following systems: Atlanta, Boise, Cleveland, Gary, Grand Rapids, Nassau County, Philadelphia, Salt Lake City, San Francisco, and St. Louis? Is this an important matter?
3. What was the first school survey to make use of standard tests? Compare the earliest report with the Atlanta, Cleveland, and Gary *Reports*, as to percentage of space devoted to tests and as to interpretation of findings.
4. In what way have the Survey Reports made use of classroom visits and observations as checks on the efficiency of instruction?
5. Examine several Survey Reports to see how they present comparative data on test results. What are some of the difficulties in making such comparisons?
6. Explain fully what use you could make in a school survey of a test of achievement in arithmetic. What light would the results throw on the teaching, the supervision, the work of principals, the daily time schedule, or the curriculum?
7. Why would a survey study test results: By grades; by schools; by age groups; by class groups; and by mental groups?
8. Should the study of time allotment be brought to bear in interpreting test results? Why? Do the test norms take account of this factor?
9. Suggest a plan for representing the results of tests graphically: (1) when grades are to be compared; (2) when schools are to be compared.

PROBLEMS FOR INVESTIGATION AND REPORT

1. Through Survey Reports trace the development of educational and mental tests as a part of survey technique.
2. Make a list of tests which, in terms of requirements suggested by this chapter, would be suitable for survey purposes.
3. Select a test which you would use for a certain purpose in a general survey, and draw up a set of forms suggesting all the arrangements of the test data which you would consider it desirable to use.
4. Taking the testing programs that were carried out in the surveys listed under references below, write out for each report what seems to have been the purpose of the tests as a whole in the survey.
5. Select a city school system with which you are acquainted, and outline what you think would be a suitable test program to use in a general survey of the schools. Let Table XXVI suggest devices for presenting the plan.
6. Suggest possible explanations of the following educational-test findings:
   a. There was wide variation among scores within classes in the lower grades, and relatively low scores in the upper grades.
   b. The average E.A. was low, but the average E.Q. was high.

7. In order adequately to interpret the results of the use of tests, what other data must be obtained? Suggest a means for obtaining this supplementary data so that it will be easy to gather and convenient to use in this and other parts of the study.
8. Make a careful estimate of the force needed and of the time needed to apply a given test, score the papers, and arrange a grade display of results in a school system having 15,000 children in elementary and high schools.
9. In what ways could tests be used to find the causes of poor holding power in a school system?

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Also, especially, recent volumes of the *Yearbook of the National Society for the Study of Education.*

CHAPTER XV

EFFICIENCY OF SUPERVISION

1. The function of supervision

Reason for special chapter on supervision. By supervision we shall have in mind supervision of instruction only. The purpose in devoting a separate chapter to this subject lies in the importance of the function itself, as well as in the difficulty of making estimates of the success of its performance. Most survey reports have dealt with supervision from an administrative and organization standpoint, and otherwise only incidentally in connection with studies of other aspects of the school system. The reasons for this are obvious enough. Supervision is not a very clearly defined school function. The manner of carrying on the work is widely varied in different systems. The results of supervisory service have been difficult to measure. Much of supervision has been inspectorial and administrative in its emphasis, and has been dealt with from that angle by most surveys.

This chapter does not offer a new method for measuring the results of supervision, but it will undertake to bring together such means as are available for showing whether the results which such service should produce are in evidence. This emphasis is called for by virtue of the fact that many of the weaknesses that will be brought to light by other parts of the survey can only be overcome by an adequate system of supervision.

In a sense, then, we are to bring together here facts and conditions that have been brought to light in other chapters, and to show how they bear upon the question of supervision. Instead of viewing weak courses of study, weak time sched-

ules, and weak systems of grading from the standpoint of curricula, time schedules, and grading plans, we shall view them from the standpoint of that part of the school machinery that is primarily responsible for the weaknesses.

Supervisory duties classified. Supervision has been and is many things, and is cared for in many ways. In general it is the function of guiding the work of the teacher in the classroom, and is cared for by building principals, assistant superintendents, general supervisors, and special supervisors. In Chapter III we discussed the problem from the standpoint of organization; here we are concerned not with the machinery but with a particular type of service that is being performed.

1. *The inspectorial function.* Supervision as aid, or instruction, or direction carries with it the necessity for inspection. To be able to help a teacher we must know her weakness and strength, since her problems are never perplexing except as they tax her abilities. This inspectorial function must be turned to account in two ways: first as an initial step in a constructive program of guidance, and second as a basis for selecting and dismissing teachers. It is only through the intimate knowledge of the supervisor that the chief executive of a school system can make headway in his program of building up a staff.

2. *The instructional function.* The strictly supervisory or guidance aspects of the work must be carried on in many ways — some very direct and others very indirect. The direct ways are by visitation of classes and intimate personal conferences with teachers, by teachers' meetings, lectures, discussions, and demonstrations. The indirect ways are by seeing to it that teachers have the best possible conditions for their work, such as good arrangement of subject-matter, good time schedules, homogeneous classes, suitable instruction materials, and, finally, by examinations and checks on the teacher's work such as will virtually compel her to keep

pace with the best in her profession. Whether it is inspection, examinations and checks, general advice through lectures and bulletins, or personal demonstration and conference work, it is all to the end of a more perfectly coördinated scheme of instruction and more perfect teaching in the classroom.

2. The survey problem

Lines of inquiry. The problem for the survey is to find out whether or not these functions are being performed in the best possible way, to commend them if they are, and to show what is wrong and what changes are needed if they are not.

The inquiry may proceed along the following lines:

1. Is the function of supervision clearly conceived and recognized in the school system?
2. Is the plan for carrying on the work a sound one?
3. Is the supervisory force adequate?
4. Is there evidence, measurable or at least describable, that actual service is being rendered?

For each of these lines of inquiry there must be a suitable technique by which we may get at definite facts. If there is no supervision in evidence then we wish to know whether there is complete lack of understanding of the nature of the function. If there is supervision, then by what plan of organization is it carried on. Regardless of the character of the plan we may find too small a staff.

These three aspects of our study will have been dealt with under the heading of organization and administration. If we find that the supervisory function is ignored, that there is a weak and inefficient plan, or an inadequate staff, then we cannot expect to find satisfactory service.

The general character and extent of the staff will also have been determined by our study of the school staff, as ex-

plained in Chapter VI. Here we are to look for supervision itself, or for its results. Is the work being carried on to right ends, by right methods and devices, and are its results in evidence?

Study of methods and devices. The methods of supervision are at many points very personal and individualistic, varying with personalities and conditions, yet, aside from the matter of actual personal contacts, there exist what we may think of as methods of supervision. They may be thought of as the sum total of all that is connected with the actual mode of procedure. A device may be a thing quite apart from its use, but it is of no consequence and has little meaning when thought of in isolation or apart from its purpose and use. In use it is intimately woven into the method itself.

There is no such thing as method apart from the end or purpose which the method is to accomplish. Accordingly our first step, after we have examined the plan of supervision, is to find out what the supervision is trying to accomplish. We must hold it responsible not only for having a definite aim, but also for having a suitable aim.

It is possible that supervisors might have correct ideas as to what they should do, and yet fall far short in actual accomplishment because of wrong organization or inadequate staff, or because of poor methods of work. Accordingly, if we are to offer constructive help, we must be able to check their methods as effectively as we check their staff and organization. It is not enough to say that the results of supervision are poor. We must say why. If the staff is adequate, and the plan of organization for the work good, and the results are poor, then the weak link is the actual method of work. Furthermore, even if good results are being obtained by poor methods, the survey should bring the poor methods to light because they are costly in energy, time, and money,

and always are in danger of breaking down or leading to wrong ends. What is there that is tangible about methods, and how can we show that the methods are good or poor? This is part of our problem.

Study of results. As purpose stands at the beginning, so results stand at the end of our problem, and while, as just noted, good ends should never be used to justify poor means, our main concern after all is with what the children are getting. We could better afford to waste some money on clumsy methods, or permit a few supervisors to work harder than they should, than to have a poor product issuing in the form of weak instruction. Accordingly, the survey must not only be able to define the aims and purposes of supervision in the school system, but it must be able to show whether and to what extent right aims are being achieved.

Before us, then, is a long process, beginning back in the general aims of the school system; going forward through the specific aims of separate schools, separate branches of study, and separate class groups; involving organization of subject-matter, and the grouping of children with reference to proper aims and proper controlling factors; including the provision of right conditions and facilities for work and the carrying on of instruction; and finally bearing fruit in children possessing knowledge, skills, and ideals of the right sort and amount. Supervision is the responsible director, and next to the teacher the most intimate guardian of this process. In order to say, as surveyors, where this process is weak and strong, where shall we place our gage and make our test? Certainly at its conclusion, but because of the character of the part which supervision plays, and the divided responsibility at so many points along the line, we should evaluate the process at every step along the line as well as at its end.

3. The survey of supervisory methods

The aims of the supervisors. It is not important at which end of this process the survey begins. The process itself begins in its own aims as generally conceived by the superintendent and board of education, and as specifically conceived by the supervisory staff. This will be our order of treatment here, realizing that there would be some advantages in beginning with the other end, or results.

First, then, what is the aim of supervision? To this inquiry our answer will be found:

1. In the State school law, special city charter, city ordinances, or school board regulations, but stated only in very general terms if at all.
2. By the plan of supervision as suggested by the organization of the supervisory staff, but also only a general indication of the functions to be performed.
3. In a careful statement of aims, which may be requested from each member of the staff.
4. In a list of specific functions performed, also obtained by request from members of the staff.
5. By a study of records and reports in the offices of supervisors.
6. By a study of the results attained and not attained by the staff.

Any printed rule governing the duties of supervisors will stand as an index to the general attitude and intent of the school system as affecting the function of supervision. How these legal provisions are interpreted by officers must be found in other places. The plan of organization shows how the general function is broken up and assigned to persons. What is expected of principals, of special subject supervisors, and of general supervisors? If the plan calls for special supervision of writing, art, manual training, home economics, music, and physical training, while all other subjects are left to general supervisors — a very few from the central

office, each assigned to a group of schools or to a group of subjects or to a group of grades — we have at least some idea of aims. If, in addition, we find no rules or no placement of authority that organizes these workers and coördinates their work with that of the principals, then we may reasonably doubt whether in reality there is any central dominating aim for supervision. Any such wrong placement of authority will have been discovered by our study of the administrative organization; here the facts must be reviewed as evidence bearing upon the question of what are the aims of supervision.

It is possible to obtain from members of the staff a careful statement of what they conceive to be their proper duties and of what specific tasks they now perform. Although the latter may in a few instances be exaggerated and need verification, they will nevertheless be found decidedly helpful in directing the investigator to important matters.

The work that is found on a supervisor's desk, and the records, papers, reports, and materials that are kept for use in his or her work, are helpful suggestions as to just what is being attempted by supervisors. From all these sources together it is possible to obtain a satisfactory notion of what aims have been set for supervision to accomplish. If this is inexact and general, it is none the less useful as a means of getting exactly what is wanted in a survey.

How the aims are being achieved. We have now analyzed the functions of the supervisor, and have suggested a means for finding out whether the aims of the supervisory staff are focused upon these functions. Here we ask, How is the work carried on?

To answer this we might go about and observe the supervisor at work. This would be of some value, but after all it is a time-consuming method and one that might give the observer an exceptional instead of the usual performance. At

the best we should have little more than personal opinion to offer as a result of such a study. To be convincing we must have something more objective and impersonal to offer. Accordingly let us take each of the main types of supervisory work separately, and see if we do not find a means of making a careful check on the mode of procedure. We will begin with the supervision of instruction.

Supervising instruction. The supervision of instruction may, for our purpose here, include not only the work of instructing and helping teachers with their teaching problems, but also all those tasks involved in keeping the curriculum revised, maintaining proper standards of marking and of promotions, working out suitable time schedules, and helping with the selection of proper equipment for use in the classroom. How does the supervisor proceed in carrying on these duties?

To do all this work well calls for a considerable amount of information and study. A supervisor who spends nearly all his time visiting classes will likely work with far too little intimate knowledge of the facts he needs to deal with. On the other hand, too much study and figuring and recording in the office represents an opposite extreme. Our first question, then, is: Roughly, what is the distribution of the supervisor's time between these two types of work? This is easily ascertained by simple inquiry, as only a rough estimate is needed. If the school has a bureau of research then many of the necessary studies will be carried on there, freeing the supervisor for work on plans, for studying his data, for teachers' meetings, and for visitation and conference. Without such assistance he will be compelled to be at his desk relatively more, and to obtain from his teachers certain help needed in his studies.

To supervise instruction well calls for actual teaching. This may be accomplished by various methods. Among the

best methods thus far found are visitation, followed by individual conferences in which the supervisor goes over the work seen or given and helps the teacher to a clear understanding of her difficulties; actual demonstrations; teachers' meetings, or small group-conferences; assigned readings, with discussion following; and sending teachers to observe other classes at work. Whether or not these things are being done is very easy to ascertain by inquiry. Again, no minute detail is needed here. Does the supervisor use these methods or their equivalent to the extent that practice has shown to be desirable?

Curriculum adjustments, and promotions. The curricula have been dealt with in Chapter IX. Here we want especially to see what the supervisors have had to do with its making and revisions, and especially the extent to which the teachers have participated in this work. If a teacher has helped to make a curriculum, one good end has almost surely been attained for the supervisor, namely, his teachers all have an understanding of the curriculum and in consequence clearer and more definite aims for their teaching. If the supervisor (whether it be superintendent, principal, or general or special supervisor) has made the curricula, and handed them down to his teachers as a book of orders or instructions to be followed, he has done a very bad piece of supervision, however good the curricula on paper may be. It is easy to find out how this work has been done, or is being done. It should be discussed with the supervisors, the names of chairmen of curriculum committees requested, and copies of the reports of such committees asked for.

Making promotions. How are promotions made? This also has had separate treatment (Chapter VIII), but here we want to know how it is done in order to see whether the procedure has supervisory value. We would first review the rules and examine the standards governing promotion

and classification of children. Is promotion by grade, or by year, or by subject? How are special cases dealt with? To what extent does the teacher's judgment determine promotion? In classification, what means are used to make a class as homogeneous, as possible? Most of what we need here will be found in printed form and may be read.

Making working programs, and the marking systems. How is the time schedule made (see Chapter XI) and to what extent and in what ways may teachers vary from it to meet special needs? This is not merely a matter of the distribution of time, but also, especially for the high schools, one of avoiding conflicts as well. Is such work done by committees of teachers, or by a supervisor, or in the registrar's office? How far distant is the work done from those who are to live by it day by day?

Similarly we are concerned with how the marking system is devised and operated, what part the supervisor plays in building up the library, and in providing other support for the work of instruction.

While many of these things cannot be studied in a precise fashion, yet such an examination as this will make it possible for the survey to find how it is that especially good or especially poor results in supervision are being attained.

Checking up on the work of the teachers. Wise supervision can never avoid the necessity of checking up and enforcing standards. No group of workers is likely to maintain ideal standards without being forced to do so through some form of supervision. This is no unkind criticism of teachers. It is a mere fact about human nature, and applies to us all as individuals and as groups. How to apply such checks without abusing them is something many administrators never learn. A negative program is always easier to follow than a positive one. Bossing and driving are easier than leading. What we wish to know is: By what methods does the super-

visor keep check on the teacher to see that she is really doing her best?

One check is by the use of tests (see Chapter XIV). A test given soon after school opens and again at the close of the term is an effective means of learning what the teacher has accomplished. The number of failures or demotions and the distribution of class marks is another. These are two tangible checks, and there are many lesser ones that supervisors should use. The survey can easily find whether any checks are being employed, and if so what ones and their value.

By what methods, too, does the supervisor proceed in forming a judgment of a teacher? Does he use a score card or other measuring device? Does he keep a record of his visits, with notation of the quality of work seen and the teachability of the teacher? Does he judge teachers by results of pupil tests? Does he keep track of the reading and the committee work they do, and of the reports they prepare? All these are angles from which supervisors have the best of opportunity to judge teachers, and their offices should contain files of cumulative records of such facts. Summarized at the close of the year, such records furnish a sound basis for a judgment of the teacher's worth to the school system.

4. The survey of results of supervision

The effects of careful supervision. The lines of cleavage between administrative and supervisory responsibility on the one hand, and between teaching and supervisory responsibility on the other may not be perfectly clear. Perhaps they should not be, since there is often joint responsibility in any well-developed social organization. In one case an end may be accomplished by administrative and in another by supervisory methods, and again in one case by teaching and

in another by supervisory methods. In general, however, in spite of the specific assignment of the responsibility for a given piece of work, we know that some things should be done by administrative and by teaching methods, and others by supervisory methods.

We expect supervisors to watch the working and the effect of all the parts of the school machinery that have any very direct bearing upon the actual work of instruction. If a certain promotion plan has been ordered into use by the superintendent, then it is expected that supervisors and lesser administrators will watch the working of the plan, and that through these officers the superintendent will keep informed as to its value. Supervision means coördinating and facilitating the processes of instruction.

It may be an administrative responsibility to make or have made any given revision in a course of study or time schedule, but it is largely through the supervisor and teacher that the revision will be made, and through them too that the administrator will keep in touch with the success of the revision. This is because of the intimate contact the supervisor must have with such matters if he is to make instruction the most effective.

As already pointed out, good supervision, if it has administrative backing, will result in well-coördinated courses of study; in good plans of grading and promotion; in effective means for the classification of children; in proper allotment of time to courses; in a fair marking system; in a wise selection of library and instructional materials; and in a harmonious and competent teaching staff. Our inquiry, then, here is: Are all these in evidence as judged, not only by what appears to be the aims or purposes, not only by the methods of procedure, but also by actual results?

Measuring results of supervision. There are as yet no means available for making accurate measures of the results

of supervision. It is enough for a survey to show that excellent, fair, or poor results are in evidence. This can be done by reasonably objective methods.

In a school system of any size, printed courses of study or syllabi will be found, showing what courses are offered, the aims of those courses, what the content of the courses are, their organization by topics and grades or years, the textbooks, and often suggestions as to the relation of one course to others. The study of these materials alone, as suggested in Chapter IX, will show whether there is a well or poorly coördinated curriculum, even though we do not ask how the courses were developed.

Instruction will not be effective if the plan of promotion and grading is weak. Printed rules and records of results are available for study here. How many failures, how many regular, and how many special promotions and demotions are made in the year? Again, by use of standard tests, what are the results as compared with grade and age norms, and how much overlapping is there between grades? What means are available and to what extent for handling exceptional cases? Are classes formed on the basis of mental age, or years in school, or chronological age? All these are in records, and suggestions have been made for their study (Chapters VIII, X, XII, XIV). These results we wish here to interpret as evidence that supervision is good or poor.

Similarly, studies of time schedules alongside of failures by studies, and studies of teachers' marks, will give us quantitative statements of just how much coördination is being effected by these means (Chapters XI, XII). If class marks and achievement-test results vary widely from what mental age and I.Q. lead us to expect, then there is lack of adjustment that supervision is clearly responsible for, unless we find that these duties are in administrative rather than supervisory hands. In such a case our criticism is merely

changed from "poor supervision" to "lack of supervision," or "wrong kind of supervision."

Thus, by a study of supervisory aims, methods, and results, the survey will be able to bring a considerable body of fact to bear upon this highly important aspect of educational organization and procedure. In view of the plain fact that supervision is ill-understood, and, in general, the weakest part of school practice, this body of fact ought to be brought directly to bear upon this problem to the end that we may clarify the function and bring the work to a higher plane.

QUESTIONS FOR CLASS DISCUSSION

1. What is meant by supervision of instruction? In a school of from five to fifteen teachers, what part of the principal's time should be devoted to supervision of instruction?
2. In what way is supervision related to inspectorial duties in a school system? In what sense is a school principal an inspector?
3. In what sense is supervision a process of instruction? Suggest some types of instruction that a school principal should be prepared to give.
4. Can a survey measure the effect of supervision? How was supervision evaluated by Dr. Frank McMurry in the *New York City School Survey?*
5. How would you find out whether the right methods and technique of supervision are in use?
6. What should be the relation of a school principal to: (a) special teachers; (b) special supervisors; (c) general supervisors?
7. How would you proceed in a survey to find out whether or not right supervisory objectives are being undertaken?
8. How could you determine whether adequate provision has been made for supervision? (See *Survey Reports* for Boise, New York City (volume by Elliott), Portland, Salt Lake City, and San Francisco.)
9. What information would you expect to find on file in the offices of: (1) superintendent; (2) general supervisor; (3) special supervisor; and (4) principals, that would throw valuable light on the status of supervision in the school system?
10. Make a clear distinction between the administrative and supervisory duties of a school principal.

PROBLEMS FOR INVESTIGATION AND REPORT

1. Take a printed course of study, and by a study of it draw up a statement of the aims of instruction for the various courses. Would a

teacher readily understand these aims as there stated, and if not how, as a supervisor, would you proceed to make them clear to her?

2. From a like study show what the teacher of elementary history ought to know about the courses in geography and English. Are the geographical facts needed in sixth-grade history made available by the courses in geography before they are called for in history?
3. Examine teachers' marks for classes (see educational journals and survey reports for published collections) and state why you think the marks are just or unjust.
4. Examine published figures on time allotment, and note the differences in time devoted to different courses. What effect should this have upon our interpretation of the results of standard tests given to any particular class?
5. Draw up a schematic representation of the plan of supervision in use in a selected city, showing how the staff is organized, how it is related to the teaching and administrative groups, how it is organized with reference to the courses of study, and the number of teachers and pupils per supervisor. Would you expect good or poor supervision in that city?
6. Make a list of studies or investigations that would be necessary to produce facts needed by supervisors. What ones could be made by the research department and handed over in completed form to the supervisors? What ones should the supervisors make for themselves? In what ones should teachers coöperate (not merely to help get the work done but rather to serve their own purposes)?
7. What part of a school principal's time could profitably be devoted to the supervision of instruction if:

   a. He has 5 teachers.
   b. He has 10 teachers.
   c. He has 15 teachers.
   d. He has 20 teachers.
   e. He has 30 teachers.
   f. He has 40 teachers.

8. Make a study of survey reports to see how they have sought to evaluate the worth of supervision. What objective evidence do they utilize?

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CHAPTER XVI

THE SUPERVISION OF HEALTH

1. The plan and program

The physical aim in education. There is good reason why any general survey should make a special problem of health supervision. Theoretically the physical aim has long been recognized, but in practice the recognition has been far from adequate. It is not necessary here to explain that increased attendance by compulsion has brought to school vast numbers of children who are not only physically incapable of good work, but who are actually harmed by the usual type of confinement and work in the classroom.

To meet the increasing demand for a more effective system of training devoted to this physical aim has necessitated the development of specific programs and of an organized staff of workers. In Figure 4, page 68, provision was made for a medical supervisor with the rank of assistant superintendent of schools, and with nurses and visiting teachers to assist him in his work. These are only part of the machinery necessary to carry on a broad constructive health program, much of which must of necessity be handled by teachers, janitors, and physical directors.

The health program. The health program in a modern school system may be described under four separate divisions, as follows:

1. Health inspection, intended primarily to prevent epidemics and to locate marked cases of physical disability. This is more or less a negative program, though for obvious reasons of very first importance.
2. Measurement, examination, and treatment, including an extensive and thorough physical study of every child, diag-

nosis with recommendation to parents or actual treatment at a dispensary or clinic, and school feeding. This supplements and extends the above, and becomes an aggressive attack on all health problems.

3. Health instruction, including courses in general and sex hygiene and sanitation, special work for health habits, training for speech defects, home supervision, and a program of play.
4. Healthful surroundings, including rooms and facilities of all kinds for protecting the child against eye strain, dust and bad air, lack of exercise, or contact with unsanitary conditions.

As a basis for judging the efficiency of health supervision let us indicate somewhat more in detail what this program should include.

Medical inspection. By inspection, as the word has come to be used in this connection, is meant a hasty and somewhat casual examination of pupils with a view to locating evidences of infectious or contagious disease. The work is concerned with acute diseases, and is intended to prevent the spread of such ailments as might easily become epidemics.

The work in some cases is done by teachers alone, who watch pupils constantly for disease symptoms, though the school nurse has by now taken over this work quite generally in the cities. She not only inspects buildings, but also goes from room to room looking at each child, making special note of any disorders of skin or symptoms of eye, nose, or throat troubles. Suspicious cases are taken apart for more careful examination, and if thought necessary may be sent to the school physician, or home with request that the family physician be called.

Examination and treatment. In most city school systems the work of inspection is but a small part of the health program. It includes also a thorough physical examination of the entire body, both for acute and for chronic illness or for physical defects. Careful measures of height, weight, and

chest expansion are made, and a complete report of the findings is recorded in suitable form for filing. From this record certain information is given to the child's teacher, and certain information is sent to the parent. In case remediable defects are found the parents are advised to consult their physician, or the child is sent to a school clinic for free treatment. Such thorough examinations are repeated at intervals of one to three years. Where a suspicious case is found, or one in need of treatment, it is followed up at short intervals.

To make this effective a staff of physicians and nurses is necessary, including a director, supported by dentists, eye, ear, nose, and throat specialists, and female physicians, the number depending upon the school population. A standard of one physician to three thousand children and one nurse to two thousand children has been suggested by the results of experience.[1] It calls for a central office or dispensary and for clinics, and there should be in all large buildings a separate room for the nurse. In line with these clinics and examinations comes the equal necessity for a program of feeding and nursing. This calls for open-air schools, and for arrangements for hot food for lunches. The extent to which all these things are provided without charge is a question for local solution mainly. The survey is primarily concerned to know whether or not the work is being done.

Health instruction. In addition to inspection and care of the sick and defective there must be a program of instruction. This is largely a curriculum problem and may be dealt with under that head. Yet the facts brought out must be examined with reference to the function here under consideration.

[1] For the best information on the size and organization of staff, see Rapeer, Louis W.: *School Health Administration.* New York, Teachers College, Columbia University, 1913.

There must be regular courses in hygiene and sanitation as part of the science work. In these courses there must be special emphasis upon persistent drill and inspection, covering such matters as care of teeth, nails, eyes, face, and scalp, general cleanliness, and care of the body in matters of posture, sleep, exercise, and proper clothing, and this training must extend to the home. The goal is not merely knowledge, but habits and ideals or prejudices touching all these matters. There must be special instruction for those with defective speech, sight, hearing, or intelligence, and there must be a well-rounded program of play and physical training, making special point of free play in the open and of special corrective work for those who need it.

In all this program careful regard must be had for right procedure. Not only play but play in the right amount and at right intervals is wanted. This calls for careful examination of the daily time schedule to see that the school is not only teaching hygiene, but that it is teaching all it teaches hygienically.

Healthful surroundings. No small part of the program is the proper construction, furnishing, and care of the school home. This has been dealt with in the building survey, but the information upon this problem must be brought together and specially interpreted with reference to this aspect of the health program.

We are concerned here with how the classrooms are lighted, how they are seated, the air space per child, the ventilation, the heating, the toilet facilities, the drinking-water; likewise with the efficiency of the janitor service, the provision for washing, for baths, and for drinking; the kind of blackboards and chalk in use; and the kind of play facilities indoors and out.

2. The survey problem

Scope of the problem. A general survey will be responsible for making a study of all the aspects of the school system that are suggested by this plan. In fact this plan clearly suggests the scope of the work that is to be undertaken. We must look into the general plan of health work, into the organization of the staff as to size and equipment for the work assigned to it, into the facilities for carrying on its work, into the work that is actually being done as compared with what is needed, into the system of records and reports, and into the efficiency of the service.

Its relation to other parts of the survey. This reaches into nearly every aspect of the survey for the reason that here we are singling out one of the several aims of instruction for special treatment. It is not enough to examine the curriculum in general, for then the physical aim (possibly we might with good reason say also the æsthetic aim) of instruction would not receive adequate attention. The health and physical-development end of school work is new, and so we need to bring together from all the survey studies those facts that bear upon this problem and its solution.

To this end we look to the chapters above covering the survey of organization, staff, buildings, curricula, records and reports, child accounting, the daily program, and guidance work, and ask that each make its particular contribution to a special study of how the school is caring for the health and growth of its pupils. That is, the entire school machinery is utilized in the solution of this problem, and so we look to these many aspects of the study for facts and suggestions which, when brought together, will give us a unified view of the entire health problem.

Available standards. This whole movement is so new that as yet we have few definite standards against which to

measure the work or its results. Accordingly at many points we are compelled to rely upon a rough common-sense check, made with reference to what has been found fairly satisfactory practice over the country. Our first and, at some points, only question is, are the schools doing anything or not? At other points we are able to say this is poor, fair, or good procedure. Again, we may be able to apply accepted measures and to explain how good the results or conditions are.

Principles of organization and management, principles of lighting and ventilating buildings, and psychological principles touching the matter of fatigue in its bearing upon the work and recreation programs all will make their contributions, as noted in other chapters, while a mere counting of cases — cases examined or treated or dismissed or cured — will at some points give a satisfactory measure of the efficiency of the work.

Health survey a special problem. A survey of the health of the teachers and children can be made if necessary, though it is a separate problem and may or may not be undertaken. If there is virtually no health supervision in the schools then it should be undertaken and results fully reported. If a good health program is being carried out it may not be necessary, though small sample studies to be used as checks on the work under way will prove very helpful in getting an intimate view of the work that is being done, and of what ought to be done.

Such a survey, if exhaustive, would involve full examination of each teacher and each pupil, which would in itself be a large undertaking. For survey purposes such an exhaustive study would be unnecessary. What would be worth while would be a hasty inspection of large numbers and a more careful study of those showing symptoms of defect or disease, together with a body of information gathered by

teachers covering matters that could not be learned by inspection.

A few nurses employed for a short time could make the inspections, using a stenographer to record such matters as numbers inspected, defects noted, height, weight, age, sex, grade, and such other information as might be needed. Similarly a physician could be employed to make the examination of selected cases. By such means it would be possible to furnish a useful description of the health of teachers and pupils.

3. Surveying the plan of health work

Functional basis of organization. The four general purposes above outlined would serve as a useful standard of high-class service. In the light of the purposes and of the general conception of the functions of health supervision that are embodied in such a comprehensive program, any city could be properly judged. Does the city have a program of inspection; a program of examination, diagnosis, and treatment; a program of instruction; and a sanitary and hygienically operated plant and equipment?

Whether or not these ends are being served will readily appear from a study of the rules and regulations of the board, if such are in print, or if not then from a review of the staff and its organization. The work done in order to approximate the organization shown in Figure 4 (page 68) will indicate very clearly the nature of the work that is being done, so far as the first two parts of the program are concerned. The curriculum study, and the detailed studies associated with the study of the curriculum — such, for example, as a study of student activities — will show what is being done on part three of the program, while the building study will answer the questions of part four.

A type of organization. It will be well to work out sche-

matically the plan of organization, showing the functions, the staff, and the way in which the various functions are carried on. Figure 12 is offered here by way of a suggested form and as a suitable plan of organization for carrying on the health supervision. The number of physicians and special-

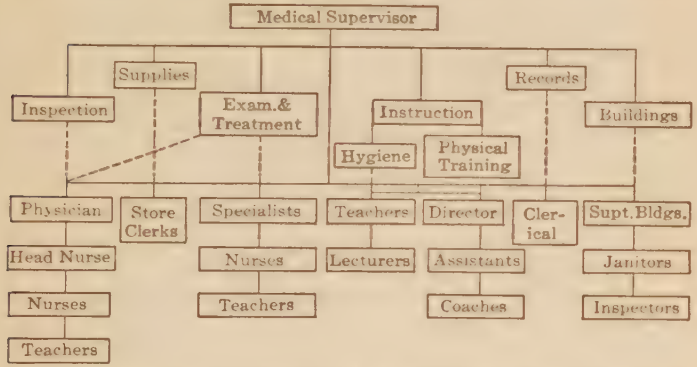

FIG. 12. SCHEMATIC REPRESENTATION OF FUNCTIONS AND STAFF ORGANIZATION FOR A PROGRAM OF HEALTH SUPERVISION

ists for eye, ear, nose, throat, and mouth, and the number of nurses, teachers, coaches, and building inspectors needed would depend upon the size of the system. The dotted lines connect members of the staff with the functions, but are merely suggestive of the more intimate details of staff coordinations, the whole being intended as a plan of expansion for Figure 4.

4. Surveying the equipment and facilities for work

Dispensary. One of the first provisions to be made beyond the employment and organization of a staff is the arrangement in each large building for a separate space to be used by physician and nurses as office and dispensary. This should be a separate room or a corridor partitioned off, and

should have a small dressing room with toilet facilities adjacent. The dispensary should contain chairs, table, couch, a pair of scales, a medical cabinet containing supplies, and filing cases for records.

In smaller schools temporary arrangements devised by use of screens can be made to approximate this equipment and to serve far better than nothing, and that at next to no cost.

Clinics. It would seem unnecessary to present here a standard equipment for a clinic. An eye clinic; a dental clinic; an ear, nose, and throat clinic; an orthopædic clinic; or any other special clinic—each must have a special equipment. The chances are that if the staff is provided and an attempt is made to operate a clinic, the equipment will be roughly equal to the work undertaken, though suggested standards for equipping such clinics have been proposed and may be consulted.[1]

Printed forms. If there is to be real health supervision there must be worked out an organization by which adequate records and reports can be made and kept of the work as it proceeds. The central office, and each chief subordinate, must know much about the details of work going on under their general direction, and to do this facts must be readily available and in brief form. Nurses must report to head nurses, head nurses to medical inspectors or chiefs of clinics, and these latter to the central office. Teachers must have record of the results of inspections, examinations, treatments, cures, exclusions, and readmittances if the condition of the child's health is to make a difference in the way he is dealt with in classrooms. Parents must be kept informed about many of the facts and conditions brought to light by

[1] See especially Rapeer, L. W.: *Educational Hygiene.* New York, Charles Scribner's Sons, 1915. Also the same author's *School Health Administration.* New York, Teachers College, Columbia University, 1913; and Hoag and Terman's *Health Work in the Schools.* Boston, Houghton Mifflin Company, 1915.

the examinations, and principals and other administrative officers must have facts before they can know who is to be sent to an open-air school, to a special room, excused, or given special physical drills, and for all this a system of printed forms must be devised.

A list of such forms would vary somewhat with the size of the school system, but with these functions in mind it is clear that there must be a cumulative record card for each pupil. This should go with him wherever he goes, and be in the possession of his teacher or principal. This is a permanent record that will cover the entire school period of the child. Other forms, some for temporary reporting, some for more permanent record, and some for mere bookkeeping purposes, will be found necessary and will be worked out to fit the organization of the health staff and the school population. Our test of its value is whether or not it coördinates the work, puts information in proper hands when it should be there, and makes a permanent record of facts that should be preserved.

Other equipment. For carrying on health instruction certain teaching materials will be needed if the work is to be effective. These matters, such, for instance, as materials for demonstrating how to care for a drowning person or one severely burned or wounded, would be looked for by the one studying the curriculum and the facilities for instruction.

In the building we should look to the kinds of materials in use for cleaning floors, windows, and blackboards; to the number and type of lavatories, urinals and toilets; the towels, soap, mirrors, and drinking fountains; and on the playground and in the play rooms to the kinds and amount of play apparatus. All these should be examined in number and kinds, with a view to determining their fitness and adequacy for carrying out a well-rounded health program. While we may have no absolute standards that can be used

to measure with perfect accuracy the worth of these items, yet in all of them we need no very minute study to say that the equipment is good, fair, or poor.

5. Surveying the work and its results

Bases for judging efficiency. However excellent the staff, the plan of work, and the equipment, our final question is: How efficient is the work that is being done. How can the value of the work be determined? Two possibilities are open to us. We may learn what work is being done: How many children have been inspected; how many treated; how many excluded; how many are taking health courses. This would give us a view of the process itself which, when supplemented by observations of the staff at work, would furnish a good basis for passing at least a rough judgment on the efficiency of the work. The second approach is rather more from the standpoint of product, output, or results; that is, it is a view of the process at its end or very close to its end, rather than at a midway point. Here we ask: How many have been cured; how many have gained more than normal weight or height; how many teeth have been repaired; how many eyes provided with glasses?

We may not be able in all cases to apply units of measure that are exact, yet there are a few norms that are fairly well established and these norms can be applied with some degree of confidence.

Our survey of the inspection work, proceeding from the two viewpoints here suggested, will ascertain: first, what inspections are made, how many children are inspected, by whom and with what frequency they are inspected, and what building inspections are made? and second, what evidence is there in the records of this work that satisfactory results are being obtained?

Inspections by nurses or physicians. Routine inspection

of all children, covering hands, wrists, face, hair, eyes, tongue, and throat, and any obvious conditions such as wounds, ear-ache, coughs, and lameness, should be made from day to day and somewhat more systematically each month, or at least not less frequently than four times a year.[1] All pupils who have been out of school because of illness, who have been excluded by the nurse because of symptoms detected, or who have been out for a week from any cause should be inspected at the time of re-entrance. Further, any pupil should be inspected at any time upon recommendation of the teacher. Buildings should be inspected three or four times a year.

Record of all such inspections, with full notation of findings, should be made on the pupil's cumulative record card and on building cards, and monthly summaries of all inspections should be on file both in the principal's office for the building, and in the office of the director or supervisor for the entire system. These records should be examined for the above facts, and note should be made of the extent to which the practice varies from the above norms.

The amount of sickness, the number excluded because of symptoms, or the kinds of diseases found are not to be considered as indexes of efficiency, yet in a measure they are. We should expect competent health supervision virtually to do away with such ailments as pediculosis, scabies, impetigo, contagiosa, and ringworm within the year and to lessen the number of cases from year to year, and the records should show a consistent decline in cases of this type of ailment.

The work of examination and of the clinic. Once a year if possible, and certainly once in three years, each child should be given a thorough physical examination. On the basis of the findings the child's entire program of work should be

[1] See Kelley, Helen W., and Bradshaw, Mabel C.: *A Handbook for School Nurses*. New York, The Macmillan Company, 1921.

gone over to see that his program is not only not interfering with his physical comfort and normal development, but that, where there is need, it actually supports the child. It is on the basis of such examinations that corrective exercises are prescribed, assignments to special rooms and to open-air schools are made, amount of work increased or decreased, parents advised about serious disorders, and various treatments prescribed.

For evidence of the work being done we may turn to the summary records. How many examinations were made, their frequency and thoroughness, numbers and kinds of ailments found, and then the real test — what was done about the findings? How many were excluded from school, and how many of the bad teeth were repaired at the school clinic, by the family dentist, or not repaired at all? How many were sent to open-air school? How many were given a definite line of corrective exercises? How many had defective vision corrected? How many were assigned to different seats because of eye or ear defects?

Extent of physical defects among children. On the basis of more than a half million children examined, in nine American cities, it has been found that approximately 65 per cent of all school children are suffering from physical defects serious enough to require attention.[1] It was found that 41.5 per cent had defective teeth, 20.1 per cent had throat trouble, 15.3 per cent had eye defects, 10.8 per cent had nasal trouble, 11.8 per cent other defects. For New York City alone the same authors report that out of 230,243 children, 166,368 or 72.3 per cent were in need of treatment. Defective teeth were found in 59 per cent of the cases, 15 per cent had hypertrophied tonsils, 11.9 per cent had defective

[1] Gulick and Ayres: *Medical Inspection of Schools.* New York, Russell Sage Foundation, 1913. See also Hoag and Terman: *Health Work in the Schools.* Boston, Houghton Mifflin Company, 1914.

nasal breathing, 10.6 per cent had defective vision, and 2.5 per cent were suffering from malnutrition. Dr. Rapeer reports that combined statistics for twenty-five cities showed that 33.3 per cent of the children were without physical defects, that about 33.3 per cent had teeth defects only, and that 33.4 per cent had teeth and other defects.[1]

It cannot be assumed that these percentages would hold true for any given city, yet they do furnish a rough norm. We may judge a system of health supervision somewhat in terms of the number of physical and mental defects it brings to light, the number it treats, the number it cures, and the number it advises parents about. The figures here quoted will serve as a rough index of the number and kinds of defects we may reasonably expect efficient supervision to bring to light. Other details will be found by consulting the authorities quoted above.

Percentage of defects treated. Of these defects how many should be treated? This question is difficult to answer. In treating disease and defects, and in preparing food, the school is taking on responsibilities which heretofore have been borne by the home or by charity, or not at all. How fast shall the school go in this matter? Upon this our practice, to say nothing of our social philosophy, is not surely established. In 1894, there were but four city school systems carrying on medical inspection work. In 1911 there were 411 cities, and now the practice is nearly universal. It is inconceivable that entirely satisfactory norms should have been established in so short a time when conditions are so varied. There are statistics available for comparison, but our norm may as well be 100 per cent, and then comparative tables may be arranged showing how the city in question ranks with other cities of its class. Form 40 suggests a means

[1] Rapeer, Louis W.: *School Health Administration*. New York, Teachers College, Columbia University, 1913.

for assembling the comparative data. Naturally where the case warranted it this form could be expanded to include detail for various types of defects.

An examination of a considerable number of city school reports shows that so far no uniform plan of reporting such data has been developed. Much of the above form could be filled out, however, from some of the better reports now available, and it is to be hoped that reports of such data will soon be as well standardized as are reports of data on attendance, scholastic achievement, and retardation at the present time.

Where records of work are available through a period of years, it is possible to see what progress has been made, from year to year, in the elimination of diseases and in the correction of deformities and minor defects.[1]

The work of instruction and building inspection. The chapters on curriculum and on buildings and grounds offer sufficient suggestions for gathering data on these two aspects of the health program, and these need not be repeated here.

The health survey. If an attempt is to be made to gather data on the health of the children, the following outline, used

[1] Kelley and Bradshaw, in *A Handbook for School Nurses*, report the following taken — No. 1 from a Chicago public school, and No. 2 from a Chicago private school:

Ailment	No. 1		No. 2	
	1913	1917	1913	1917
Pediculosis	300	18	351	49
Ringworm	45	2	26	2
Impetigo	598	51	601	74
Favus	8	0	3	0
Scabies	20	0	18	0

FORM 40. SHOWING, FOR TEN CITIES, COMPARATIVE DATA ON HEALTH INSPECTIONS, EXAMINATIONS, AND DEFECTS FOUND AND TREATED

CITY	INSPECTIONS BY NURSE OR DOCTOR			MEDICAL EXAMINATIONS			PUPILS WITH PHYSICAL DEFECTS						
	Frequency	No. in year	Per cent of enrollment	Frequency	No. in year	Per cent of enrollment	Visual	Nasal and throat	Skin	Teeth	Other	Total	Per cent of enrollment
City A													
City B													
City N													

in the Boise Survey, will be found useful as a means of supplementing data planned for above.

The following lists were used in the Boise Survey, and are quite similar to lists used in the Salt Lake City and Denver Surveys.

A. To be filled out by the teacher, without consulting the children:
   1. No. of pupils who have frequent or chronic difficulty in breathing through the nose.
   2. No. who have frequent or chronic nasal discharge.
   3. No. showing signs of imperfect hearing.
   4. No. who stutter or stammer.
   5. No. showing defects of eyes or vision.
   6. No. whose vision has been tested this year.
   7. No. who wear glasses regularly.
   8. No. who show nervous irritability, timidity, tendency to worry, crying without cause, etc.
   9. No. who show signs of moral weakness.
   10. No. who show marked lack of mental alertness.
   11. No. who show unusual mental alertness.
   12. No. lacking in play ability.
   13. No. delicate or frequently ill.
   14. No. whose posture (sitting or standing) is faulty.

B. Teacher to obtain answers to following from children:
   1. How many have headache often (2 or 3 times a month)?
   2. How many have earache often (2 or 3 times a month)?
   3. How many have sore throats or colds often?
   4. How many have had tonsils or adenoids removed?
   5. How many have had tonsils or adenoids removed during the past year?
   6. How many cannot easily read the writing on the blackboard?
   7. For how many does the print in the book seem to blur, run together, or look black?
   8. How many have ever gone to a dentist?
   9. How many have done so during the past year?
   10. How many have a tooth brush?
   11. How many have toothache often?
   12. How many usually come to school without breakfast?
   13. How many do not usually eat lunch?

While questionnaire methods are not to be used too often or trusted too far, there is little doubt that in the surveys above mentioned this method did obtain valuable information. One value it would have in a survey by the regular staff would be to bring these matters forcefully to the attention of the teachers.

QUESTIONS FOR CLASS DISCUSSION

1. Explain what is meant by physical aim in education, after consulting the following *Survey Reports:* Boise, Cleveland, Portland, Salt Lake City, and Denver.
2. Define: *health inspection*, *health examination*, *health instruction*, and *healthful surroundings*, as treated in this chapter.
3. Compare the *Survey Reports* for Portland, Salt Lake City, and Denver on the extent of illness and physical defects found among school children.
4. Describe the program of health education, as recommended by the *Philadelphia Survey Report*. (See vol. IV, chap. VI, and vol. II, chap. IV.)
5. How is this work to be connected with other lines of instruction in the Philadelphia schools?
6. What types of health work are suggested for the Cleveland schools in the *Cleveland Survey Report?* (See the volume on *Health Work in Public Schools*.)
7. What records would have to be available in order to supply the information on medical inspection called for in this chapter?
8. Suggest how you might fit the plan of organization suggested in Figure 12 into a selected city school system. Represent the arrangement schematically.
9. From a study of the survey reports listed below, under References, how would you make use of a dental clinic in a scheme of health instruction?
10. In what ways could the health department of a city school system coöperate advantageously with the city health department?

PROBLEMS FOR INVESTIGATION AND REPORT

1. Take the printed course of study and syllabi for a given city school system, and examine them with a view to stating whether or not the physical aim of instruction is adequately provided for.
2. Make a careful study of the complete details of the plan of health supervision in each of a group of cities. How do they compare?
   a. In number of workers (compare on full-time basis).

b. In the scope of the work undertaken.
c. In the organization of the staff.
d. In relative emphasis on the four main divisions of work as outlined above.

3. Draw up a schematic representation of the plan of organization for health work found in a given city, and compare it in principle with the plan presented in this chapter.
4. Make a comparative study of the cumulative health-record cards for children in use in a group of cities.
5. Make a study of the entire collection of record and report forms used in this connection in a given city, showing exactly how and by whom each form is used. Check the forms against suggestions to be found in the references below.
6. Examine a dozen city school reports for the report on medical inspection or health supervision. To what extent can comparative data be assembled from these reports?
7. From all sources available, assemble data to show the percentage of pupils having the various physical and mental defects. What would seem to be the best norm now obtainable for each disease and type of defect?

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Terman, Lewis M.: *The Hygiene of the School Child.* Boston, Houghton Mifflin Company, 1913.

Survey Reports for: Boise, Cleveland (volume by Leonard P. and May Ayres), Memphis, Philadelphia, Portland, Salt Lake City, and the State of Alabama.

See also the publications of the Children's Bureau of the United States Department of Labor.

CHAPTER XVII

THE FUNCTION OF RESEARCH IN THE PUBLIC SCHOOL

1. The necessity for research

Research in education. Throughout this book we have dealt constantly with facts, and with the most scientific methods for obtaining, arranging, and interpreting facts about a school system. We have tried to make clear that the modern school executive does not dictate policies until he has first made them, and that making them often involves much study and investigation. Staff service — that is, scientific investigation and research — is not a fad of the theorist, but an essential working tool of modern administration and management everywhere, education not excepted. Exact and exhaustive knowledge, and not delegated authority, will direct education henceforth in democratic America, the rule-of-thumb worker in public-school work having lost his prestige in favor of the man who knows how to marshal facts and who works with reference to facts.

In this study of survey technique we have attempted to show how a scientific worker proceeds in the solution of each of the major problems with which a school principal or superintendent is faced. It must now be clear that research in education is essential if we are to solve the problems that are not only increasing in number, but also increasing in complexity.

At this point it seems that we might profit by passing to a consideration of how research has entered into almost every phase of our civilization. The school is but one element in our complex culture. We have seen how numerous and

difficult are the problems with which it has to deal. The same is true of every part of our social scheme, and to almost every part research has come to furnish the guidance needed.

Research in war. As society grows in complexity the necessity for more and more study of physical, chemical, and social forces increases. The problems of getting food, shelter, and clothing, of maintaining justice, and of guarding against enemies are all very simple in a primitive tribe of a few hundred people, but not at all simple in a complicated society of millions. The World War has brought most forcefully to mind the necessity for research. It was a game of wits and resources, and it soon became evident that the side would win which could make its resources go the farthest. Great laboratories of research were established by most of the governments at war, and their contributions in new ideas issuing in the form of food, clothing, and offensive or defensive instruments of warfare are well known.

The idea was not new with this War. In 1863, President Lincoln approved the Congressional act that brought the National Academy of Sciences into existence in this country, and it was not only through this Academy that work was done at that time, but also that our recent war researches were initiated. This resulted in the development of the National Research Council, later to become a part of the Council of National Defense. Most of these national research organizations are still in existence, and will continue to carry on studies through which it is hoped that we may solve many of the great social and industrial problems as they arise.

Governmental research. It is not in war alone, however, but also in times of peace that States have found research of value. Our national Department of Agriculture, with its many specialized bureaus and divisions and experiment

stations, illustrates well how governmental research has been brought to bear upon problems of great national import.

Similarly our State and municipal bureaus and divisions of research, devoted to the study of State and city governmental organization; to problems of health, highways, delinquency, and education; and to the conduct of public business dealings have made it clear that research helps to guarantee honest government, a wise use of public money, and a rapid development of our natural resources.[1]

Industrial research. Private industry has not been blind to the possibilities of research as a normal part of a great industrial organization. According to a recent survey, it was found that there are over five hundred private industrial establishments in this country in which research work is being carried on.[2] In many cases extensive laboratories are fitted up for this purpose, and a high grade of scientific work is being done.

As one permits his mind to run over all that this suggests, and adds to the list the vast amount of work that is being carried on in universities, by scientific societies, and by such organizations as the Carnegie Institution, the Rockefeller Institute, and other similar agencies, he is impressed with the way in which research has become a normal and indispensable part of our social life. This is the setting, then, in which the more recent activities in educational research find themselves. We may well ask, not, shall we introduce research but how can the school make research a more effective part of our scheme of public education?

[1] See vols. II and V of the *Bulletins of the National Research Council* for studies of research work being carried on by the States of California and Illinois.

[2] See *Bulletin of the National Research Council*, vol. I, part 2, March 1920, also vol. II, 1921.

2. Organization for educational research

Research by our Federal Bureau. We have no national system of education, but we do have a most useful Bureau which compiles valuable statistics, carries out important investigations, gives helpful advice, and has undertaken a few experiments. There is probably no country in the world that possesses as valuable a body of educational statistics as is that which we have embodied in the reports, bulletins, and circulars of our National Bureau of Education.

Without the slightest authority to dictate educational procedure in the States, this Bureau has rendered invaluable service through its own investigations, and through the carefully assembled data which have made possible thousands of studies that have been brought to bear upon State, county, and district school policies throughout the country.

State and city bureaus of educational research. Since the time of Horace Mann and Henry Barnard, our State school departments have appreciated the importance of research as a basis for proposed legislation, and many of our State school reports contain the results of valuable studies of the schools and their needs. More recently this aspect of the work in State departments of education is being emphasized more and more. We used to think of State inspection of schools. Later the emphasis began to shift from inspection toward supervision, and now to make supervision effective we have found that extensive staff service has to be provided and this has given rise to the bureau or division of research.

If the bureau of research in State departments is as yet in its beginning, it is much more than that in our city systems. During the past decade more than fifty cities have established such bureaus. Each year since the beginning the number has increased. Not only large cities, but small

cities as well, and even single high schools, have found it a profitable investment to make.

This recent development of staff service in education furnishes one of the most striking educational experiments of our time. We need not sketch the history of the movement here in detail.[1] It has been linked up with the history of certain other useful experiments, such as the survey movement, tests and measurements, and studies of retardation, of health, and of guidance. In some cases it has been merely a part of test work, in others it has been broader. In general, as one reviews the work that is being done by the different bureaus, he is impressed with the fact that at its best it is really the scientific survey brought into the school system, made continuous, and carried on by the schools themselves.

The survey and research. This research service is precisely what the survey movement has pointed toward from the outset. Just as business and industry started their recent great expansion by calling in the expert accountant and the efficiency engineer, so education has called in the educational surveyor. Also, as business very soon set up its own laboratory and efficiency staff, so education is doing the same in the bureau of research. That is why this book has emphasized the importance of survey technique in the practical work of administration. The two go together, and while no one would say that research has found its place completely as yet, a review of the publications cited below will convince one that research as a practical aid in school management is no longer a mere notion of the student of educational theory.

That this work has come to stay now seems established. The teacher-training institutions are anticipating it. To

[1] See studies by Deffenbaugh, Baldwin, and Martens, listed in references at the end of this chapter.

their old practice and demonstration schools are being added real experimental schools. Bureaus of research are growing up in our State universities. These are giving a new turn to the meaning of extension work, and are offering leadership and a means of coördinating educational research work throughout their respective States. Local, State, and national teachers' associations are developing real research departments.[1] Excellent periodicals and monographs, filled with the results of research on education,[2] are growing in numbers, and scientific devices for extending the field of research are being perfected.

The beginnings of research in city systems. Each of these agencies must find its own proper place in the general scheme of things. Here we are especially concerned with research in city school systems. We have so far but little experience as a basis for saying what a city should spend for such service, and we are still short of men and women who are properly trained for such work. The beginning has been simple. In most cases some demonstration of the value of such work has preceded the actual formal launching of a research program. Our leading superintendents have seen the need of such work, and many of their recently trained principals and teachers have been eager to undertake small tasks. The result has been that boards of education have seen its value and have been willing to follow their superintendents' lead in developing it.

This will continue to be a good way to inaugurate such work. In fact, that is rather the American way. A real plan must be developed in time, however, and the following suggestions may be useful in this connection.

The possible functions of research in public schools. As

[1] As the work of the Research Department of the National Education Association, and the valuable survey reports published by it.

[2] Especially noteworthy is *The Journal of Educational Research* edited by Dr. B. C. Buckingham.

pointed out in Chapter III, staff service is indispensable in a modern school system. Questions ranging all the way from the purchase of a school desk or the classification of a misfit pupil to the complicated problems of organization, building, bonding, costs, and curriculum-making can be settled properly only in the light of many facts. Often these facts are not apparent without a lengthy study of the situation, and no single executive through the help of his clerical assistants can make all the studies needed.

Every school officer needs to make decisions, and these decisions should not clash. They must therefore be oriented with respect to a single policy, and with respect to facts which are known to all and mean the same to all. If each member of the staff is left to his or her own resources, decisions will often be made arbitrarily, or with reference to too few facts, or perhaps without proper reference to the decisions of others.

It seems that it should be possible to make an inventory of all the kinds of facts that are needed for operating the schools, and to classify these facts, first, into two groups those that could be obtained when needed and by those who need them; and, second, those that could be obtained only by investigation, research, or experiment and would require time and training to obtain and interpret.

With the former a research bureau would have nothing to do, its province lying only with the latter. Of this latter group some would be needed by the superintendent and principals, others by teachers and supervisors, and others by janitors or business officers. That is, in organizing a department of research we must think of the functions to be served, in terms of the members and groups of members of the staff who need the service. We must also think of the kinds of information that will be needed. This latter is not difficult, for information pertaining to every kind of school material,

purpose, or activity will be needed. The difficulty will be in classifying this information in a way that will facilitate the process of accumulating and using it.

Records and reports. In Chapter VII we discussed the survey of the system of records and reports in use. There we classified this service and the forms needed under three heads: correspondence and reporting; records; and rules and regulations. There is a considerable amount of routine work, such as the formal bookkeeping of financial and educational accounts, filling out of report forms, and preparing contracts which together represent a large amount of work and a body of extremely important data. Taking care of such matters is not research work, but it is laying the foundation for research work. Often these records contain inaccuracies, and they are often clumsy in their arrangement. There are two reasons why certain parts of this work should be placed in the hands of the bureau of research: first, because then it will become a specialized and expert service; and second, because it is necessary that the research workers have access to and intimate acquaintance with these data. The difference will be the difference between mere statistics and statistics properly treated and interpreted.

This is not a proposal that the work of registering pupils or the work of financial bookkeeping be taken over by the research department. The business manager will need his staff of bookkeepers and auditors, and so will the high-school registrar need his. There is a line of cleavage, however, not entirely clear at every point perhaps, yet reasonably easy to establish, between the service to be performed by the business office, the registrar's office, the guidance bureau, the health and attendance departments, and the principal's office on the one hand, and the research bureau on the other. At present a thorough study of just where this line of cleavage lies is greatly needed. Just where it lies will depend in

large part upon the major plan of school organization. We shall come to this problem shortly.

Keeping in mind that the business office will keep books on all financial transactions and on property values, and that each of the various administrative offices will prepare corresponding records of their own work, thus supplying much of the raw material for research, we have still the task of bringing all these facts together into such form as will make it possible to see the school system as a whole. This latter service might in general be the point at which the research department would take up the problem of records and reports, and from this point it would proceed to prepare all the routine and cumulative tabulations that are made regularly from year to year, including the formal reports to county, State, and Federal officials, and the tables on attendance, enrollment, retardation, promotions, graduations, and like matters.

The formal machinery of organization. Beyond this there would be the problem of perfecting the formal machinery of organization — the weeding-out of forms that are obsolete, revising old forms, working out new forms, inaugurating better systems for filing, devising schemes for reporting compilations back promptly to administrative heads, and plans for keeping proper information before the public. Further, there is the problem of building up a professional library and making it useful.

These represent a large group of needs with which school officers and teachers have long been familiar. Much of the work suggested would not be research work, in any proper sense, but all of it would facilitate research work. Still further, it would relieve high-salaried officers from duties of a clerical nature, reduce the need for clerical help in executive offices throughout the system, and contribute to a far more effective administration of the schools. Part of the work is

of a high order and is technical in character. Perfecting the system of record and report forms with reference to the functional demands of the schools, perfecting filing systems, devising systems for distributing information, and the treatment and interpretation of various combinations of statistics, will call for the services of a technically trained person.

Administrative problems. A second group of problems that must be solved if the main school policy is to be sound may be grouped under the function of administration. Here would be included the investigations needed in order to build up a sound organization, strong staff, suitable building program, and a satisfactory plan of finance. Many studies will be necessary in the handling of the larger and more external problems of administration if the main structure of the school system is to be sound.

The development of an administrative code and a classification of the members of the staff, based upon a careful study of the functions to be performed and the best ways of performing them; preparation and revisions of salary schedules, tenure rules, local retirement and pension provisions; study of anticipated state legislation, and of adjustments necessary to meet new laws; studies of problems in school architecture, such as types of buildings for various types of curricula, placement of buildings, seating and other permanent equipment; studies in cost analysis, cost of buildings and insurance, cost of bonding, types of credit financing, help on budget studies and studies on sources of income and depreciation — these suggest some of the needs of the board of education and the superintendent as they proceed with the development of the main school policy.

Supervisory and instructional problems. Supervision and instruction cannot be carried on effectively without information that can be had only as a result of wide and exhaustive studies of the factors involved. Pupils must be classi-

fied properly, properly adjusted to curricula, kept moving through their courses at their own best rates, they must be kept healthy and growing, and the whole scheme of instruction must be intimately coördinated.

To do these things well, large bodies of fact about children must be assembled and interpreted. We must know the intelligence of the children, their physical condition, their social heredity, and their home life. We must know the progress they have made in their studies, and the lines along which their talent and best achievement lies. We must know about absences, about quitting school, and about the best size for class groups. We must know the worth of our teaching methods, the meaning of our class marks, and how to make the adjustments needed to put each child under the very best instruction.

This will call for investigations and experiments along all these lines which will utilize all the best devices available for finding out these things. Tests and scales for measuring mental ability and achievement in studies, score cards for judging the efficiency of instruction, and health indexes — all will suggest lines of work that can be set going and followed up year after year, much of it providing cumulative records running through and even beyond the child's school career. Practically all this work centers about studies of the individual child and of the conditions under which his instruction is carried on, and represents a group of problems suitable as a basis for a unit of organization.

Curriculum problems. Another group of problems will center about the study of curricula content, curricula organization, and classroom equipment. What types of curricula and types of schools shall be provided, what types of special rooms and courses, what shall be included in each grade or year of each course offered, and what facilities are needed for carrying on instruction. Experiments in the use of

open-air rooms and schools, in opportunity classes, in ungraded rooms, and in special adjustment rooms will be needed constantly in a progressive school system. In brief, it is the problem of keeping the curriculum alive.

Plan of organization for a city school research bureau. This does not outline all the staff service needed nor all the functions that should be assigned to a bureau of research. It is intended to suggest the scope of the service needed, and what would seem to be suitable main lines of cleavage for the organization of a research staff. It is clear that the scope must be as broad as the schools themselves, and anything short of this should be under a special name and not under the general title of educational research.[1] Figure 13 suggests a scheme of organization based upon the analysis of the proposed functions as just presented.

This plan gives the bureau head the rank of assistant superintendent of schools, and makes him directly responsible to the superintendent and in authority entirely independent of all other officers and departments. It conceives the director to be administrative head of the division, but to have no executive authority or responsibility outside his own staff. For that reason we choose to use the title of director of research, rather than that of assistant superintendent of schools. As director he is to be in charge of all staff service, and is to carry in his office as large a part of the routine statistical and clerical work as can be handled away from other offices.

Under the director the work would be organized into four divisions, as already explained above, each in charge of an assistant specially trained for the technical work to be car-

[1] Miss Elsie H. Martens's excellent description of the bureaus now operating in the cities of this country (United States Bureau of Education, City School Leaflet no. 14, January, 1924) shows that in many cases the functions are limited to only a few activities.

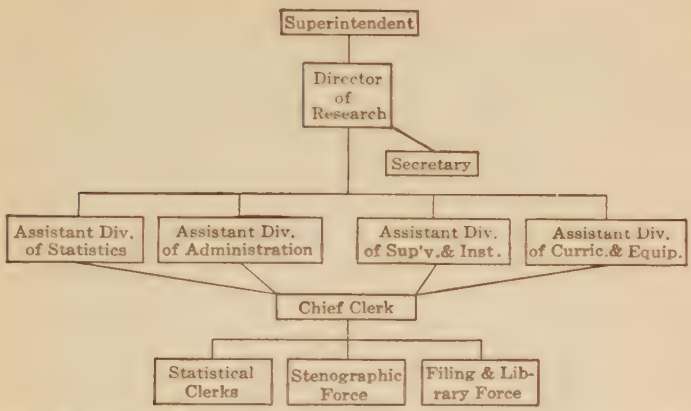

FIG. 13. PLAN OF ORGANIZATION FOR A RESEARCH BUREAU IN A CITY SCHOOL SYSTEM

ried on by the division. The clerical force can best be organized under a chief clerk and in three groups, one dealing with statistical work, such as compiling tables, operating computing machines, and making charts; one dealing with stenographic work, operating mimeographic and duplicating machines, and typing; and one having charge of all filing and catalogue service in connection with the work of the office and the professional library for the teaching staff. The number of helpers needed would depend upon the amount of work undertaken, and would vary somewhat from month to month.

Functions of the director. The director would recommend appointments and dismissals within his department, and be the active executive over the research staff. He would attend board meetings, committee conferences, principals' and teachers' meetings, and meetings of the advisory council, partly to furnish information and advice, and partly to discover where the schools are in need of staff service.

He would need to have office hours for conferences with teachers, principals, and others connected with the schools. He would outline investigations and experiments and exercise general oversight over them, making assignments of the various parts to the proper divisions in his staff.

The director must be a constant observer of the school system, a constant listener, and a constant seeker after weak points. He comes to his desk from the problems. The problem as he found it is most practical and must ever be his point of departure in research. With his problem before him he sits down to figure out a solution. The solution may involve simple investigation of a narrow field or a wide and intricate study, extending through months and often involving experimentation. He may solve it through one of his divisions alone, or it may use them all. He is the one to work out and direct the plan, and the one to bring together the results from the various sources through the various parts of his research machinery, and to formulate a coördinated report that centers upon the one problem he started out to solvė.

Studying the problems. His duties do not end however with a written report. This report is always for some special purpose. Perhaps it is to settle the question why there is so much retardation in grade five. His statistical division would gather the facts as to the amount of retardation and the studies responsible for it; the division of supervision and instruction would organize the needed facts as to mentality and achievement; and the curriculum division would show what work was to be done. When these divisions have done their work and a report has been prepared, then that is the diagnosis, and it must be followed by prescription and treatment. It will be the director's duty, through the superintendent maybe or through an assistant superintendent, and finally through principals and teachers,

to outline a proposed treatment for the case. He does not dictate or enforce this treatment, for he has no such authority. He offers it and explains it; not only its meaning but its application to practical details. This done his responsibility ends and he begins on other problems.

This point of contact between the research director and the teachers and principals is a very important one, and the success of all staff service depends upon it. Any lack of cordiality at this point, any jealousy, any disagreeable personalities, any attempt to use too much authority, any presumption of superiority on either side will be disastrous. There must be perfect coöperation. That is why the director should be given more than ordinary freedom in the development of the research staff. There must be excellent morale within the bureau, an understanding that this work is a new experiment in education that must "sell itself" every day, and that, accordingly, a kindly, cordial, unselfish personality is a prime qualification for position on the staff from the director down.

Functions of assistants. The four assistants shown in Figure 13 are the immediate subordinates of the director, each responsible for personal supervision of the work within his special field. The assistants must be well trained in the technique of research, and should have had actual teaching and supervisory experience. They will be expected to render constructive service in helping the director with the formulation of plans for investigations and experiments.

While the division of responsibility among them is fairly clear, the director will often consult with them over a problem, and at many points two or more of them will be at work on different phases of a single problem. Each assistant will look after the execution of plans of work within his division. He will requisition materials, arrange dates with principals and teachers when necessary, and direct the clerical service

in gathering data. As the data are brought together he will keep the director posted on the progress of the study, and will assist in the preparation of partial and final reports.

Functions of the clerical force. Work that can be done by inexpensive help should not be done by highly paid workers. This needs to be said often in educational administration, and especially in this new type of work. A reasonably capable clerk with high-school training can be trained in a few weeks to carry on many of the more routine processes in statistical work, though she cannot be expected to do large constructive planning. Accordingly the clerical force should be made as efficient as possible in order to free the assistants for more responsible work. The organization suggested arranges for orderly specialization, and makes one person immediately responsible for seeing that things are kept running. In statistical work the clerical assistant will see that every figure is properly checked, that proper technique in tabulations and charts is adhered to, that statistical machines are properly cared for, and that all data are fully labeled and properly organized and filed. She will distribute work to the stenographic force, see that copy work is always "read back," see that right paper is used, and that machines are kept in order. On filing she will consult with assistants as to difficult matters, and see that the filing clerk takes proper care of files when they have been set up, looking after cross-references and the technical details of the entire filing system.

3. Typical research problems

The setting of research problems. As organization is based upon functions, and each unit of the school organization stands for a certain function or group of related functions, it is obvious that no problem can arise in a school system outside the jurisdiction of some organization unit,

though it may often arise at the line of division between two units of organization. In such cases the responsibility would be divided. Accordingly the research bureau will always be at work on something that has to do with the responsibilities of one or another of the executive heads within the system.

The superintendent will be interested in all investigations, but not all investigations will be initiated from the immediate duties of his office. The business manager will be interested in all problems that have a direct bearing upon income, expenditures, debts, costs, property, purchasing, and accounting. The health director will be interested in all studies that have to do with the child's physical condition and development, and each of the other individuals or groups will be concerned in turn with problems that pertain to their particular duties.

Thus the point of contact with the schools will always involve a personal contact with certain officials and with certain units of school organization. In initiating any study, therefore, the director of research should first determine in whose territory the problem lies, and whose work will be affected by the investigation. In many cases the entire work will be done by the research staff. In other cases it can be done only with direct assistance from others. In all cases its ultimate success will depend upon the attitude taken by those affected.

Problem-study procedure. The director must first of all prepare the group concerned. Often a group of workers may be able to suggest a problem, but not be able to define it clearly or to suggest a method of solving it. In such a case the bureau should not proceed with the solution until the workers have been helped to see exactly the nature of the problem, and until they have a clear idea of the plan for its solution. Only then will they be prepared to act on the

findings. In a sense the solution must be fully rationalized for them and become their very own solution. Then and then only can they make the largest use of the results.

Once this setting has been prepared, the study may then proceed. If it extends over a period of time the director will do well to report progress at intervals, taking care to keep alive the knowledge and the interests of those concerned. Of course this does not mean that the bureau will not turn out a great deal of work by itself, and publish or otherwise make available the results and what the results suggest. This will be true of all the more routine work on attendance, promotions, and other child-accounting problems, of cost accounting, results in routine achievement tests, and health surveys, but not of new problems. Once retardation studies were new and could not profitably be made without consulting teachers and principals — first, because data were not available in records; and second, because it would likely have been resented as a bit of unfair inspection by superior officers. Now it is accepted as a routine procedure and teachers and principals want the information it provides. Thus problems that to-day are new and have to be handled with all interested parties willing and intelligently coöperating, will tomorrow become routine procedure. It is the business of the bureau to discover new things to do, to do them, and to secure their adoption as normal procedure.

Administrative research problems. It is not easy to anticipate all the administrative problems that might furnish appropriate work for a bureau of research, for many of them would develop out of conditions that have not yet arisen. On the other hand one can readily list certain problems that are in a sense regularly recurring, and others that have never been solved properly. A few of these may be indicated here, and we shall do so and consider them under the headings of

superintendent's problems, principal's problems, business problems, and general problems.

Superintendent's problems. From the various chapters in this book numbers of problems of the above two types could be listed for each of the several units of the school organization. Chapter II suggested a vast amount of information which a superintendent would need at the beginning of his term of office. A set of maps showing population centers, racial and social groups, attendance-district boundaries, types of schools, classes of industries, heavy-traffic lanes, public buildings of all types, parks and playgrounds, and the probabilities of expansion and social or industrial changes in communities, would be desired. These maps would need to be revised from year to year, so that they would be available for use in locating or changing types of schools and in properly placing new buildings. Statistical tables covering a full analysis of the total population and of the school population should be kept, and revised from time to time for the same purposes and for the light they would throw on the curriculum problems. A complete file of building plans covering all buildings, together with photographs and lists of permanent apparatus, need to be readily available so that the superintendent and board can keep clearly before them a full picture of the school system and of the people for whom the schools exist. It is against this general background that general policy-changes and expansions proceed.

In the matter of organization, the superintendent's office should have a very detailed organization chart showing every main group of functions, and all the officers responsible for them. He should have sketches of floor plans of all buildings, showing for what the various areas are used, the seating plans of classrooms and laboratories, the number in the staff, and the numbers of children provided for.

In matters of finance, he would want files of all budgets; he would want tables and graphs showing tax-rates and income by sources, and expenditures, total and by schools, departments, and budget divisions through the years; he would want figures on taxable and real wealth, on the value of the school plant and equipment, on debts outstanding and on sinking funds; and he would want to see, in table and graph, the trend of costs in terms of one or more units, such as cost per pupil or per teacher or per square yard for cleaning, or per cubic foot for building.

All these problems on staff and buildings, and many more, readily suggest themselves from a review of Part I of this book. All these are types of information that can be prepared properly only by one trained in the technique of research. Yet, these are but foundation materials for the superintendent.

Light on new problems. Any day may bring to light a problem for which these bodies of information would be but a starting-point. The rate of growth in school population may show that an extensive building program will have to be entered upon soon. What is to be done? Here are many problems in one. What is the financial status of the district at present? What is the debt burden, and what is the plan of liquidation? With present debt obligations, rising maintenance costs, and demand for remodeling and larger equipment, how should the city proceed to develop its plant?

He must find out, too, how much plant he will need. This calls for an estimate of the population-growth for several years ahead. He must know where buildings will be needed. What are the shifts and changes in population-density, and where these are leading? He must know what types of schools he will need. Here he must analyze his population to get rate of growth in kindergarten, elementary, and high-school groups. Further, he must know the

growth of different social, racial, and occupational groups if he is to see ahead the types of schools he must provide.

Again the introduction of the Gary type or the modified platoon type of organization may be under consideration. A complete sketch of the program must be worked out with respect to the buildings and grounds, and with respect to the staff and equipment demanded, and these demands must be set alongside of the present staff, buildings, and equipment. What changes or additions would be necessary? Would it involve loss or increase in cost, and could the changes be affected in time and the costs be met? Would the change help in the future program of housing?

These are but samples of an almost endless list of demands which a superintendent could make upon a research staff.

Principals' problems, general. School principals are responsible for much of the internal administration of a school system. The principal interprets the general school policy for a given locality. Ordinarily he has wide freedom in all matters of detail, but is held responsible for satisfactory results. The problems of one principal are essentially the problems of all principals. There are differences, to be sure, as there are social differences between communities, or curriculum differences, or differences in size of school, but all principals are in charge of schools consisting of teachers, children, curricula, books, buildings, janitors, and playgrounds. To attain their respective educational objectives all must deal with problems of registration, grading, classification, promotion, failure, retardation, acceleration, class marks, daily time schedules, teachers' meetings, requisitions, special programs, attendance, adjustment of size of class to room-capacity, judging teachers' efficiency, reporting to superintendent, preparing bulletins, making announcements, and directing fire-drills.

The superintendent cannot compare schools, judge the

success of achievement, or anticipate costs with any accuracy unless the standards applied in one school apply in all alike. Grade six curriculum in elementary arithmetic in one school must be the equivalent of grade six arithmetic in another school, and for a pupil to pass this work in one school must be the equivalent of passing it in another school. A unit of credit in one high-school study must be the same as a unit of credit in another study, and the same in all schools. Since standardized tests came into use it has been shown repeatedly that our term "grade" does not have the meaning we have in the past attributed to it. We have assumed that the work of any grade was definite and the same in amount everywhere, and that passing a grade meant mastery of the work of the grade. Tests have shown that thousands of children pass into our high schools with very much less than what we have assumed to be eighth-grade knowledge of spelling. We have found the quality of work among the children of any grade ranging from two or more grades below, to two or more grades above the proper range for their grade.

To solve such problems, so that standards will be more uniform throughout a system, will call for extensive and continuous testing programs. Such programs cannot be carried out until after teachers and principals have sensed the problem fully, and until they are sufficiently familiar with testing technique to aid in carrying it out. This may call for the establishment of evening lectures or courses of instruction on testing.

Special problems. Beside the problems that all principals have jointly, special problems arise in almost every large school. The problem of classifying dull children, children of newly arrived foreign parents, and physically defective children, present many problems. The usual curriculum does not seem suited, the usual classroom procedure seems unfitted, and the teachers are not trained for such special

tasks. What is to be done? The research bureau, with the help of principal and teachers, will make as clear an analysis of the problem as possible. The director will outline a plan of attack, advise with the principal and teachers, enlist their coöperation, and assign the necessary tasks to his assistants. They will give mental tests and achievement tests, taking note of age-and-grade status, and thus secure a complete inventory of where the children stand with reference to normal expectancy. They will study the health needs and conditions. In the light of these, as well as of social data and schoolroom conditions, they will judge of the appropriateness of the regular curriculum, of the propriety of changing teachers, of the need for open-air rooms, and then, with the help of the school staff, they will plan to effect the changes decided upon.

A principal will not infrequently desire to undertake an experiment, or an experiment for which his school is especially suited may be suggested by the bureau, by the superintendent or by a supervisor. Experiments that might be suggested are such as the testing out of a time schedule after the content of the curriculum has undergone revision, the introduction of courses organized on a project basis, the establishment of an opportunity class, the development of a community center, or the comparison of teaching methods. For assistance in setting up and carrying the experiment forward he would turn to the bureau of research.

Problems of the business office. The bookkeeping, accounting, purchasing, storing, and distributing for a large city school system is in some respects a more complicated task than similar work in an industry handling an equal sum of money. The school money is spent for a very wide variety of service and materials. These services and materials are not bought and sold for profit but are simply consumed, the value received being in the form of something

that, from the standpoint of financial value, is not very tangible. The business manager desires to make his department — which is pure overhead cost to the schools — as efficient as possible, and he cannot judge how efficient it is by profits earned.

Success here depends upon something quite different from money profits. With a large staff busy with buying, storing, distributing, keeping accounts, and rendering reports, all with a view to facilitating the maintenance and operation of the educational machinery and processes, the administrative head will need sound educational knowledge as well as to be an expert in accounting and business management. Education is constantly changing; it is constantly trying new things; it is constantly expanding. It is often necessary to know in advance the cost of a proposed change, or line of expansion, or proposed experiment. It is often desirable to know the comparative cost of two or more types of organization or buildings. The facts are largely in the business office, providing some one who knows the educational side applies himself to securing them.

There are also problems of efficiency in the organization of staff, of records and reports, and of working out a set of rules for classifying new accounts, all of which need to be solved and resolved in a growing school system.

Problems in other departments. New and special problems are rapidly appearing in the fields of guidance and placement, compulsory attendance, health supervision, night schools for adults, Americanization, physical education, supervision, curriculum organization, the development of new curriculum content, part-time education, publicity service for the schools, visual education, and in schemes of coöperation with industries for special training.

The problems in guidance have been most pressing. How can the schools keep a child at work at his own best

rate along lines best suited to his abilities and interests, and in the direction of a fairly definite vocational, social, and intellectual place in society? To do this even with a degree of precision that is worth the effort will call for a large amount of accurate information about the child and his people, and about how to adjust curricula to ends that are needed. In the chapter on guidance (XIII) proposal was made of a plan for gathering such information. Obviously there is a problem in how to coördinate the staff service called for there with that of the bureau of research. Possibly the whole guidance service could be placed under the bureau, though the objection to doing so lies in that this involves the assumption of administrative responsibility and authority which is almost sure gradually to involve the bureau in time-consuming routine administrative duties that will eventually weaken the effectiveness of the staff service.

Since guidance is supervision, it is the writer's judgment that the staff service needed could be cared for through the assistant for the bureau division of supervision and instruction, thus leaving the executive and instructional part of the work to the guidance staff outside the bureau. There is no harm in close coördination of staff with line service in the school system. As suggested above, line officers should at times have experience in helping with staff service, and vice versa, yet the bureau of research must remain essentially a staff organization devoted to staff service.

It would be easy to list problems in all the above lines. Regular health surveys, preparation and revision of record forms for all these new lines, individual studies of night-school students, organization of coöperation courses, studies of absences and of those asking for work certificates, studies of Americanization programs and needs, preparation of publicity-campaign materials, and studies of results of vis-

ual instruction, all are points of contact that readily open the way as one comes to view these various functions in a modern city school system.

4. In conclusion

Throughout this book it has been emphasized at every point that investigation and experiment — that is, research — is the only rational means of intelligently carrying on administrative processes in a modern school system. The expert has pointed the way. He has devised the technique, and in surveys he has demonstrated its application to practical school problems. Now it is time for the expert's knowledge to be organized and taken over by the regular school machinery. The problems are not by any means all solved. Many of them cannot be solved satisfactorily outside the schools. Much experimenting on a large scale is needed, and this can be carried on only in the schools. It must be watched day by day. Some one, trained for such work, must be taken into the school system and made a part of it. This will be, directly or indirectly, the trainee of the survey expert, brought in as director of the research work of the school system.

We now see the natural culmination of what we have come to call the survey movement in education. From now on administration, supervision, and teaching will utilize survey methods and results as a normal part of their own technique. The research bureau will supplement this and do much that has never before been done, or if done then only by an outside expert.

Students of education must master the survey technique as a regular part of their training for positions of leadership in education, and all school workers in the field must keep pace with its development.

Henceforth the expert must turn his energies away from

the broad general survey field to highly specialized problems. He must be available as a consulting specialist, leaving the schools to keep themselves under constant general survey as a part of the normal program of management. Only when the morale of the schools has been broken, when the people have lost confidence in their leaders, or on occasions when the board is facing very large problems of reorganization will the expert need to be called in to conduct a complete general survey. At intervals these demands will arise. Until then the survey and administration must be partners in the practical management of the schools. Not by the authority of officials but by the authority of facts must the modern teacher, supervisor, and administrator be guided.

QUESTIONS FOR CLASS DISCUSSION

1. What is meant by *staff service* and by the term *research*, as used in this book? Can school principals be expected to do research work?
2. What is the nature of the research work now being carried out by the National Research Council? What service did it render during the War? (See footnote references.)
3. What important pieces of educational research have been carried out by the Federal Government? By the research department of the National Education Association?
4. What staff assistance would a principal of an eight-room school need beyond what he and his teachers could do?
5. What has a system of records and reports to do with the possibilities of research in a school system?
6. In what ways may a lack of standard terminology in school accounting affect the possibilities of research?
7. Describe the plan of organization of a city school research bureau with which you are familiar.
8. Describe the program of work under way in such a bureau.
9. Under each of the following heads, suggest a problem suitable for study by a research bureau: administration, supervision, curriculum, record system, teaching methods, organization, costs, income, bonding.
10. Define as fully as you can the functions of a director of research in a city school system.

PROBLEMS FOR INVESTIGATION AND REPORT

1. From Part I of this book, list the problems that might properly be dealt with by a research bureau. Do the same for Parts II, and III.
2. Make a list of statistical tables which you think ought to be made annually by every school system. Consult city and state superintendent's reports. (Group them under child accounting, finance, and other suitable headings.)
3. Explain how you would have the work done by a bureau organized as in Figure 13 above.
4. Make a list of important source materials that ought to be kept in every research bureau, as part of its working equipment. What Federal reports, for example, would you include?
5. To what literature could a superintendent, a health director, a business manager, or a principal turn for suggestions on office management? Could you equip a superintendent's office with proper furniture and fixtures, and filing devices for records and documents?
6. Outline a problem for a research bureau, and show how you would put the staff to work on it.
   a. Take a problem in one field, and let the class work on it.
   b. Assign each student a problem, so that together they will cover a wide variety.
7. Explain, in detail, the coördination of the work of the research bureau with that of the health supervisor. Do the same for guidance.

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